

*Space, Missile, Command and Control***WEAPONS RANGES**

AFI 13-212V1, 28 July 1994 is supplemented as follows:

This publication applies to all units utilizing the Barry M. Goldwater Range (BMGR), including those assigned or attached to Luke AFB, as well as Air Force Reserve.

SUMMARY OF REVISIONS: A ★ indicates a change from the previous edition. Actual changes are in **boldface**. Chapter 1 has been revised to reflect changes of Points of Contact and the Range Scheduling website address <http://www.luke.af.mil/rmo/aros/index.html>. Range schedules, NOTAMs, closures and this supplement are available electronically. In Chapter 2, SELLS E is no longer designated as a transition area. Threat emitter information is added. Additionally, procedures are incorporated for 'real-world' Border Patrol missions that impact the BMGR. Range overflight rules are spelled out. In Chapter 3, High-altitude range-entry procedures are added. The Ajo Evacuation corridor has been re-named to the General Aviation Evacuation Corridor. In Chapter 4, Tactical ranges are surface to 24,000' MSL. Airspace used in conjunction with the tactical ranges are re-designated to eliminate confusion. In Chapter 8, Gila Bend Air Force Auxiliary Field Procedures have been added.

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Chapter 1

RESPONSIBILITIES AND SCHEDULING

1.1. General Description. This supplement provides information and procedures for all units operating in the Barry M. Goldwater Range (BMGR). The BMGR is comprised of the airspace and impact areas within R-2301, R-2304, and R-2305.

1.1.1. BMGR Defined. The 56th Fighter Wing at Luke AFB manages the Barry M. Goldwater Range in conjunction with the US Department of Interior (DoI). Luke AFB operates R-2304 and R-2305, and the eastern half of R-2301 (R-2301East). This complex is known as the Barry M. Goldwater Range. (Figure 2.1)

1.1.2. R-2301W Defined. The western portion of R-2301 (Figure 2.1), that part of R-2301 which lies west of a line from N32 05.500 W113 30.000 to N32 44.250 W113 41.000 is designated R-2301W (West), and is operated by Marine Corps Air Station (MCAS) Yuma. Scheduling control of R-2301W is delegated to Yuma Range Scheduling; correspondence may be sent to:

Commanding Officer Attn: Range Scheduling
H & HS ATC Box 99160
MCAS Yuma, AZ 85369-9160
COMM Phone: 520-341-2214/15
DSN Phone 951-2214/15 FAX 2964.

1.2. Responsibilities.

1.2.1. Commanders. Commanders of all units and agencies which operate aircraft or perform ground operations within the boundaries of the BMGR Complex will ensure compliance with the provisions of this supplement by all personnel within their jurisdiction.

1.2.2. Units. Units requesting flight operations on the BMGR will have thoroughly reviewed this supplement for mission planning, and will make contact with appropriate Point-Of-Contact (POC)s if intending to perform operations not specifically described in this manual. All range requests will be in writing.

★1.2.3. Range Operations. Range time will not normally be granted without the emergency services at Gila Bend Air Force Auxiliary Field (GBAF) being operational. Waiver authority lies with the **56 RMO Director**. Contact the QAE office for further information (see paragraph 1.2.4.2. below).

1.2.4. Offices of Primary Responsibility (OPR). The 56 FW Range Management Office (RMO) has primary responsibility for all BMGR issues and concerns. The 56 RMO/DO is the primary POC for all operations relating to BMGR.

1.2.4.1. Daily Management. The BMGR complex is operated by contract. Authority for daily management of the BMGR complex, range maintenance, scoring, security, Goldwater Range Operations and management of the (GBAFAF) is delegated to the position known as Functional Area Chief.

1.2.4.2. Quality Assurance. Daily oversight and evaluation of the contractor's performance on the ranges is assigned to the Quality Assurance Evaluators (QAEs), who operate at GBAFAF, under the supervision and control of the Functional Area Chief. To coordinate any surface activity or any use of the Gila Bend Air Force Auxiliary Field, see Chapter 7 and contact the Quality Assurance office at:

56 RMO/QAE
HCO1 Box 20 3096 1st St.
Gila Bend AFAF, AZ 85337
Phone: (DSN) 896-5261 (Comm) 520-683-6261
FAX: (DSN) 896-5239 (Comm) 520-683-6239

1.2.4.3. 56 RMO OPRs.

★1.2.4.3.1. 56 RMO Director. The 56 RMO Director is the overall authority for issues related to BMGR. Correspondence should be sent to:

56 RMO/Director
6605 N. 140th Drive
Luke AFB, AZ 85309-1934
Phone: (DSN) 896-8520 (Comm) 623-856-8520
FAX (DSN) 896-7810 (Comm) 623-856-7810
Range Management Homepage <http://www.luke.af.mil/rmo/rmo.htm>

★1.2.4.3.2. 56 RMO/DO. The 56 FW RMO/DO (Director of Operations) is the single POC for all military operations on the BMGR and/or within the airspace managed by the 56 FW at Luke AFB. Additionally, DO is the POC for the BMGR Board, the contractors at GBAFAF, Range Incidents and all other agencies responsible for managing various aspects of the airspace and range complex. Correspondence should be sent to:

56 RMO/DO
6605 N 140th Dr.
Luke AFB, AZ 85309-1934
Phone: (DSN) 896-8790 (Comm) 623-856-8790
FAX: (DSN) 896-7810 (Comm) 623-856-7810

1.2.4.3.3. 56 RMO/ASM. The 56 FW RMO/ASM (Airspace Management Office) is responsible for coordinating all airspace issues, including Letters of Agreement (LOAs) with the FAA and other users. 56 RMO/ASM also coordinates counter measures and Electronic Counter Measures (ECM) clearances and authorizations, as well as all activities on the Military Training Routes (MTRs) assigned to the 56th Fighter Wing. Send correspondence to:

56 RMO/ASM
6605 N. 140th Dr.
Luke AFB, AZ 85309-1934
Phone: (DSN) 896-5855 (Comm) 623-856-5855
FAX: (DSN) 896-7096 (Comm) 623-856-7096

★1.2.4.3.4. **56 RMO/ASMS.** The 56 FW RMO/ASMS (Range Scheduling) is the OPR for this supplement, range scheduling issues and procedures, and is responsible for overall allocation and scheduling of 56FW-owned ranges, airspace and MTRs. ASMS interfaces with the Ground Forward Air Controllers (GFAC), ASM, ACMI and QAE. Request airspace or range time through Luke Range Scheduling at:

56 RMO/ASMS
6605 N 140th Dr.
Luke AFB, AZ 85309-1934
Phone: (DSN) 896-7654/3330 (Comm) 623-856-7654/3330
FAX: (DSN) 896-7655 (Comm) 623-856-7655
Range Scheduling Homepage: <http://www.luke.af.mil/rmo/aros/index.html>

★1.2.5. **RCO Qualification and Training.** The 56 **RMO** is responsible for Range Control Officer (RCO) qualification, training and Chapter 5 of this supplement. Send correspondence to:

56 **RMO/RCO**
6605 N 140th Dr.
Luke AFB, AZ 85309-1934
Phone: (DSN) 896-**8813** (Comm) 623-856-**8813**
FAX: (DSN) 896-**7810** (Comm) 623-856-**7810**

1.3. User Classification. Priority is given to the 20 flying squadrons or “regular users”.

1.3.1. **Regular User.** Regular Users include units of the 56 FW and 944 FW (AFRES) at Luke AFB, the 355th Wing and 305 RQS (AFRES) at Davis-Monthan AFB, the AZ Air National Guard (ANG) 162nd Fighter Wing at Tucson International Airport, ANG SNOWBIRD Units, and the Western Army National Guard Aviation Site (WAATS) and 1/285th Attack Helicopter Battalion) outside of Marana, AZ.

1.3.1.1. **Operation Snowbird.** Operation Snowbird is an official ANG program whereby ANG units deploy to Davis-Monthan AFB from typically October through April.

1.3.2. **Casual User.** Casual Users include all units not specifically designated as regular users.

1.3.3. **Hosted Unit.** A Hosted Unit refers to a unit deployed to a ‘regular user’ base and hosted by a regular user flying unit. Hosted units may request and receive range times for missions not flown in conjunction with their hosting unit; the scheduling priority, however, is below regular users (including Operation Snowbird units). The host unit is responsible for ensuring their visitors are familiar with local area procedures and complying with this range instruction.

★1.4. **Scheduling.** BMGR range times must be coordinated with 56 RMO/ASMS (Range Scheduling). Any operations on the ground must also be coordinated with the Functional Area Chief via the QAE. Scheduling procedures for regular users are outlined in the *56 RMO Policy Letter for Range Scheduling Operations, dated 1 Oct 98*.

★1.4.1. **Range Availability.** BMGR ranges are available (except Federal Holidays) from 0700-2300L Mountain Standard Time (MST), Monday through Friday, and 0800-1700L MST on **four** ANG/AFRES flying **weekend days** per month. Arizona maintains MST all year round (no Daylight Savings Time [DST]), therefore, local time for the BMGR is always ZULU minus 7 hours. The weekend fly dates are published at <http://www.luke.af.mil/rmo/aros/weekends.html> .

★1.4.2. **Obtaining Range Time Outside of Normal Hours.** BMGR time may be purchased outside of the normal operating hours by coordinating with Range Scheduling, the QAE office, the Contractor, and **56 RMO/CCR**. See paragraph 2 of Figure 1.1. for the request format. Requests must be received at least 30 days in advance. Funds must normally be transferred before confirming range times the day prior. These purchases are referred to as “call-outs”.

1.4.3. Scheduling Restrictions and Constraints.

1.4.3.1. **Manned Ranges.** Four manned ranges are available from 0700/sunrise plus 30 minutes, (not earlier than 0700) until sunset/1800, whichever occurs first, Monday through Friday. Night manned ranges are available from sunset/1800 (whichever is earlier) until 2230.

1.4.3.2. **Times.** The first morning controlled range periods will not be scheduled to begin until approximately 30 minutes after sunrise, (but not earlier than 0700) to permit adequate lighting and time for strafe pit inspection plus notification of results to Gila Bend operations and/or Range Scheduling.

1.4.3.3. **Add-ons.** “Add-ons” are defined as requests made after 1600 of the workday prior. Short-notice requests to add-on range times outside or beyond pre-scheduled range hours can be expected to be denied due to minimum notification time requirements to alert support crews.

1.4.3.4. **Night Operations.** All ranges are night capable. Night operations are available, when scheduled, only until 2230L on manned ranges. Ranges 1, 2 and 4 are the preferred night ranges. Range 3 is not normally used for night missions, since joint use with ETAC is not authorized at night.

★1.4.3.5. **Message Requirements.** All units will request approval for high explosive (HE) munitions and BDU-38s via range request, message or letter to the QAE and **ASMS**.

1.4.3.6. **Live Ordnance/LASER Requirements.** Coordinate Live or High Explosive (HE) deliveries a minimum 24 hours prior to the day of the mission when the sortie(s) occurs on a weekday (M-F) and 7 days in advance to the mission date when the sortie(s) will occur on a weekend (S/S) or holiday. Live Drops/Live Fire and use of hazardous LASERs are not authorized unless annotated as such on the range schedule.

★1.4.4. Casual User Scheduling Procedures. Casual users should submit a written range request IAW Figure 1.1. **or online through the Range Scheduling website at <http://www.luke.af.mil/rmo/aros/casualuser.html>**. Paragraph 2 of the request needs to be filled out **only** if requesting range time outside the normal operating hours. All blanks must be properly filled in or the request will be delayed pending completion.

1.4.4.1. Casual User Confirmation. Casual Users are not usually added to the schedule until approximately 10 days before the beginning of the week. Range times may be taken back under extraordinary circumstances. Range times not confirmed between 48 hours prior and 1000L of the day prior, are taken back.

★1.4.4.2. Dissimilar Aircraft/Large Force Employment (LFE) Missions. Missions with three or more different type aircraft, and/or missions with more than eight aircraft are considered large force employment missions; **Casual User** LFE mission commanders must accomplish a face-to-face briefing with a RMO/Director designated representative. Contact RMO/ASMS a minimum of 1 week prior for coordination.

★1.5. **Maintenance.** The 56 RMO is responsible for maintenance of all BMGR areas. Scheduled dates for air-to-ground range maintenance are published annually NLT 1 Aug of each year. The latest forecast range maintenance schedule can be found linked from the **Range Scheduling Homepage** at <http://www.luke.af.mil/rmo/aros/index.html>.

1.5.1. Bi-Monthly Schedule. Manned ranges are normally scheduled for a 50-day ordnance disposal (bimonthly) on a Thursday and Friday, every other month.

1.5.2. Annual and 5 Year Schedule. Manned and tactical ranges are scheduled for an annual or 5-year ordnance disposal each year. Ordinarily, an annual requires 8 weeks, and a 5-year requires 10-weeks. Typically, about 2 weeks are free between one ordnance disposal and the next. The standard cycle is: Oct-Dec: ETAC; Jan-Mar: NTAC; Apr-Jun: STAC. June: Range 4; July: Range 1; August: Range 2; September: Range 3.

1.6. Decontamination and EOD (Explosive Ordnance Disposal) Operations. Under the 56 Civil Engineering Squadron (56 CES), the Chief, EOD Flight (56 CES/CED), is responsible for providing decontamination and EOD support for BMGR. 56 CES/CED is responsible for providing qualified personnel to conduct EOD Safety Briefings, upon unit commander's request, according to this publication. 56 CES/CED is responsible for determining if weather and fire hazard conditions preclude safe EOD operations. Detailed plans for each range ordnance disposal will be established by the Range Manager and approved by the RMO Director in coordination with 56 CES/CED. Changes to range maintenance schedules will be coordinated with 56 CES/CED to permit proper EOD planning/scheduling.

1.7. Environmental Resources. The 56 RMO will ensure an environmental impact assessment and any other required studies are conducted prior to any new construction on BMGR; manage the land and natural resources to promote environmental protection consistent with the military mission; serve as focal point for non-military organizations having an interest in the natural resources of BMGR; and conduct meetings as required to review natural resource concerns of BMGR.

1.7.1. Endangered Species. The Sonoran pronghorn antelope is a federally listed endangered species. 95 percent of its existing distribution in the US is in the CPNWR and on BMGR. Eight federally listed and twelve proposed threatened and endangered species, and at least six State of Arizona protected species inhabit BMGR. Every effort will be made to protect these species in accordance with the Endangered Species Act (ESA).

★1.7.2. Sonoran Pronghorn (SPH) Antelope Clearances. The 56 RMO will use two monitors per tactical range to monitor for SPH prior to high explosive ordnance (“live”) deliveries. The monitoring will take place during daylight only, as the first event of the day on the scheduled range. The monitoring will last two hours per range (plus an additional one hour to add the Maverick target to an HE Hill monitoring), and will include visual and telemetry surveillance from the ground and from observation towers/sites. If there is a scheduled break in ordnance deliveries of more than two hours, an additional monitoring will take place. If a SPH is sighted within 5 km of either NTAC/STAC HE hill (excluding the Crater Mountains and the area north of the crater Mountains, and excluding the area south of Okie Hill (located at approximately N 32-35’ W 113-09’) within the 5 km circle around North-TAC HE Hill) or the live maverick target, no high explosive ordnance deliveries will be authorized on the affected range and no deliveries of any kind will be made within 3 km of the sighting for the remainder of the day.

1.8. Weather. Weather observations are taken at GBFAF in accordance with the contract.

1.8.1. Wind Observations. Pilot Balloon (PIBAL) upper wind observations (wind speed and direction) will be provided from the surface to 12,000’ MSL (8,000’ MSL at night). PIBALs will be taken every four hours, commencing at 0630, and one hour before the first night mission, except they will be taken every two hours anytime there is a 15 knot or greater crosswind at 2,000’ MSL or a 25 knot or greater crosswind from 3,000’ – 8,000’ MSL from the attack heading at the four manned ranges. When range operations have been terminated, PIBAL observations will be terminated. Winds are reported in magnetic direction.

1.8.2. Exceptions. No PIBAL winds will be taken if: there is a thunderstorm at Gila Bend AFAF; there is significant precipitation; surface winds exceed 30 KTS; ceilings are less than 3,000’.

1.9. Safety. Responsibility of Chief of Safety (56 FW/SE) will be to ensure periodic monitoring of EOD briefings, RCO training, and general operations and training on the BMGR complex. 56 FW/SE will, as needed, monitor, investigate, and coordinate with concerned/involved units, all reports of violations, incidents, or accidents in the BMGR which affect safety of air or ground operations.

★1.9.1. Range Incidents. The 56 RMO will handle safety related range incidents IAW AFI 13-212.

1.10. Range Board. The BMGR Range Board will be convened in accordance with AFI 13-212 AETC Sup 1. 56 RMO/DO is the OPR for the Range Board.

1.10.1. Members. Except when otherwise designated by the board chairman, the following are the members of the BMGR Board:

1.10.1.1. Chairman: 56 RMO/Director; Vice: 56 RMO/DO.

★1.10.1.2. Members: **56 RMO/RO**, 56 RMO/ESM, 56 RMO/ASM, 56 RMO/**ASMS**, 56 RMO/QAE, 56 RMO/QAE (O), **56 RMO/RCO**, 56 OG/OGV, 56 OSS/DO, 56 OSS/OSTW, 21 FS, 61 FS, 62 FS, 63 FS, 308 FS, 309 FS, 310 FS, 425 FS, 944 FW/OG (AFRES), 355 WG/OG, 162 FW/OG (ANG), 162 FW/LNG (ANG Operation Snowbird), 305 RQS (AFRES), WAATS (ARNG), 1/285 AHB (ARNG).

1.10.1.3. Advisors: 56 TRS, 56 FW/SEW, 56 CONS/LGCV, 56 MG/CC, 56 CES/CED, 56 CS/CC, Range Contractor.

1.11. Fire Fighting. The Commander, 56th CES, as Fire Marshall, is responsible for fire fighting activities and fire-related training for non-BMGR areas. The 56 RMO is responsible for the BMGR areas. Fire fighting procedures will be IAW Luke AFB Sup 1, AFI 32-2001.

1.12. Utilization Reports.

★1.12.1. Reporting Requirements. 56 RMO **Airspace Management** will compile a monthly activity report according to AFI 13-212/ AETC Sup 1, attachment 2 guidelines. A copy will be forwarded to 56 FW/HO.

1.13. Forms Prescribed.

1.13.1. RCO Report. Luke AFB Form 57, Range Control Officer's Report, is used by Range Control Officers to record RCO's comments, aircraft mission data, and range discrepancies. See Chapter 5 for procedures.

★1.13.2. Release and Hold Harmless Agreement. Luke AFB Form 11, Acknowledgment of Danger; Release and Hold Harmless Agreement Barry M. Goldwater Range (BMGR) Visit is used at GBAFAF to document **sanctioned civilian** acknowledgment of possible dangers and release and hold harmless while accessing the BMGR. See Chapter 7 for use.

**56 FW Range Management Office
CASUAL USER RANGE REQUEST FORMAT**

MEMORANDUM FOR 56 RMO/ASMS _____(date)

FROM: _____(unit) _____(POC)

_____ (phone/FAX) Email: _____

SUBJECT: Request for use of Barry M. Goldwater Range

1. This unit requests support for the following flight operations:

Date	Time(L)	Areas/Ranges/Type of Ranges	No./Type A/C	Ordnance

2. The following ranges/dates/times requested are outside of normal operating hours:

Date	Time(L)	Areas/Ranges/Type of Ranges	No./Type A/C	Ordnance

★3. If paragraph 2 of this request is applicable, this request must be Faxed to the following addressees:

Gila Bend 56 RMO/QAE	DSN FAX 896-5239, voice x-5261
Gila Bend Range Contractor	DSN FAX 896-5195, voice x-5202
56 RMO/CCR	DSN FAX 896- 7810 , voice x- 8516

4. Airfield of departure for purposes of range entry is: _____

Intended route(s) to range include (VRs/MOAs): _____

★Figure 1.1(SAMPLE)

Chapter 2

RANGE DESCRIPTION AND CAPABILITIES

2.1 General. This chapter provides basic information and describes general capabilities of the range complex.

★2.1.1. Altitudes. Unless stated otherwise, all altitudes given in this supplement are in feet above Mean Sea Level (MSL). Use the GBAFAF altimeter setting in the restricted areas and in the adjacent SELLS MOA/ATCAA for **all** operations, **unless conducting air refueling**.

2.1.2. Coordinate Conversions. Range borders and target locations are defined by coordinates given in degrees, minutes, and thousandths of minutes. Coordinates are derived from the World Geodetic System 1984 (WGS 84). NAD 83 on 1:250,000 JOINT OPERATIONS GRAPHICS (JOGs) is equivalent to WGS 84.

2.2 Range Description and Boundaries. A general description of the restricted areas follows. Avoid maneuvering within 500' of vertical boundaries, or flying within 500' outside of another vertical boundary. This provides 1,000' vertical separation. Avoid maneuvering within 2NM of Restricted Area borders. Live Aerial Gunnery missions should also avoid internal borders by at least 2NM. Range 4 missions may fly within 1NM of the R-2301E northern border.

★2.2.1. R-2301E. R-2301E (Figure 2.1) extends from the surface to 80,000', except over the Cabeza Prieta National Wildlife Refuge (**CPNWR**), where a 1,500' AGL restriction exists when not on a scheduled MTR. R-2301E is authorized for unrestricted supersonic operations above 5,000' MSL, except over the manned ranges, where supersonic is restricted to above 10,000' AGL. The entire R-2301E area is activated for use of any sub-ranges. R-2301E is subdivided into an Air Combat/Aerial Gunnery range called "AIR-TO-AIR", two Tactical Bombing Ranges, called "NORTH TAC and SOUTH TAC" (NTAC and STAC) and three manned bombing ranges, called "Ranges ONE, TWO, and FOUR" located along the northern and eastern edge. Restricted Area boundaries are:

N3250.000	W11249.000	to
N3212.000	W11257.000	to
N3212.000	W11306.000	to
N3158.000	W11306.000	along the US/Mexico border to
N3206.000	W11331.000	to
N3244.000	W11341.000	to
N3246.000	W11335.000	to the beginning.

2.2.2. R-2305. R-2305 (Figure 2.1) consists of the airspace over and out to 7NM east of AZ Highway 85 between the town of Ajo and GBAFAF. Within R-2305 lie the nuclear patterns for Ranges 1 and 2, as well as all of Range 3 and its conventional patterns. R-2305 extends from the surface to 24,000'. Supersonic operations are not authorized. R-2305 is activated for any use of manned ranges 1, 2, or 3. Restricted Area Boundaries are:

N3250.000	W11249.000	to
N3251.000	W11243.000	to
N3249.000	W11239.000	to
N3229.000	W11243.000	to
N3229.000	W11254.000	to the beginning.

2.2.3. R-2304. R-2304 (Figure 2.1) consists of a Tactical Bombing Range, called "EAST TAC" (ETAC), and the nuclear patterns for Range 3. R-2304 extends from the surface to 24,000'. Supersonic operations are not authorized. R-2304 is activated for any use of ETAC and/or Range 3. Restricted Area Boundaries are

N3239.000	W11218.000	to
N3227.000	W11218.000	to
N3227.000	W11244.000	to
N3249.000	W11239.000	to the beginning

★2.3. SELLS Military Operating Area (MOA). The SELLS MOA (Figures 2.1 through 2.3) is often used by aircraft working the BMGR, either in conjunction with flight operations in the restricted areas, or as a transit route to and from the Tucson area. The MOA overlies R-2304 and R-2305, and is subdivided into five parts, A, B, C, D and E. Sectors A and B are usually assigned together, and constitute the northern half of SELLS. **Sectors C, D and E** are usually assigned together, and constitute the southern half of SELLS. The MOA overlies the Tohono O'odham Indian Reservation and is extremely noise sensitive. Additionally, the SW corner of SELLS E overlies the Organ Pipe National Monument, another noise-sensitive area. Strict adherence to directives is essential to maintaining a strong working relationship with the inhabitants of this area. Supersonic flight in SELLS A-E is authorized above 10,000' and will be directed away from all villages. Supersonic flight is not authorized over the towns of Ajo, Sells, Hickiwan, Vaya Chin, or within 5NM of Kitt Peak Observatory. Do not overfly Kitt Peak **and avoid Baboquivari Peak by 3NM**. Flights entering SELLS above 10,000' will enter at odd numbered altitudes, while flights departing above 10,000' will use even numbered altitudes. Block altitudes must be approved by ABQ for entry and exit; however, all aircraft within a flight will comply with the correct odd/ even altitude. Below 10,000', use VFR hemispheric altitudes. All flights using the SELLS MOA will check in and out with range operations. **If all of SELLS (ABCDE) is scheduled, utilize SELLS CDE frequency (295.9) to deconflict with the Ajo Transition Area.**

★Table 2.1 SELLS Frequency Allocation

Unit	SELLS A/B	SELLS C/D/E	SELLS B	SELLS D	LATN	AJO Transition Area
All	Pri: 276.9 Sec: 316.7	Pri: 295.9 Sec: 338.5	Not Listed	Not Listed	379.4	295.9

- SELLS C/D/E Low, if scheduled separately, will use 338.5
- SELLS A/B Low will use 379.4 for transit
- SELLS E will use C/D frequency if scheduled with C/D
- SELLS E will use AAHI frequency if scheduled with AAHI

2.3.1. SELLS Low MOA's. The entire SELLS Low MOA is activated 1 hour prior to the first Tucson/ Davis-Monthan AFB mission scheduled into the BMGR complex, and is not closed until 1 hour after the last mission in the BMGR complex. Additionally, the Low MOA is activated one hour prior to the first scheduled mission in CDE Low, until 1 hour after the last mission in CDE Low. The 500' buffer between LOW and HIGH MOAs does not exist when a unit has scheduled both simultaneously

2.3.1.1. SELLS AB Low. The SELLS AB Low sectors begin at 3,000' AGL and extend up to and including 9,500' MSL. It is used primarily as a transit area for traffic to and from the Tucson bases. SELLS AB Low will not normally be scheduled for individual flight use.

★2.3.1.2. SELLS CDE Low. The SELLS CDE Low sectors begin at 3,000' AGL and extend up to and including **9,500' MSL**. It is scheduled the same way as any other BMGR sub-range through Luke Range Scheduling.

★2.3.2. Ajo Transition Area. The Ajo Transition Area begins at 3,000' AGL under the SELLS MOA (Sector A) and extends up to and including 24,000'. It is used as a transit area between R-2301E and SELLS or between SELLS and R-2305. Flights enroute to SELLS **CDE** will fly between 10,000' and 24,000' at odd altitudes. Flights departing SELLS CDE to the north will transit the Ajo transition area between 10,000' and 24,000' at even altitudes. Monitor Range Operations frequency when transiting the AJO Transition Area. The Ajo Transition Area will not normally be scheduled for a flight's exclusive use.

★2.3.2.1. Ajo Transition Area Medium-Altitude Climbs. Flights enroute to the restricted areas may climb VFR in the Ajo Transition Area between 10,000' and 24,000'. Transmit "entering Ajo Transition Area" on SELLS CDE frequency (295.9). Extreme caution should be used due to possible conflicts with flights using SELLS CDE airspace.

2.3.3. SELLS MOA/ATCAA. The SELLS MOA/ATCAA (Figure 2.3) extends to 51,000'. The SELLS MOA/ATCAA is activated 1 hour prior to the first scheduled SELLS mission, and is deactivated 1 hour after the last scheduled SELLS mission.

★2.3.3.1. SELLS AB. SELLS AB begins at 10,000'. SELLS A is restricted over R-2304 and R2305 to 25,000' **and above** (if restricted areas are active). SELLS A is restricted to above

25,000' over the Ajo Transition Area.

★2.3.3.2. SELLS CDE. SELLS CDE begins at 10,000'. The CDE Low sector is not scheduled with CDE unless specifically requested.

2.3.3.2.1. SELLS E. SELLS E may be scheduled with CD or AAHI.

2.3.3.3. Entering SELLS CDE or R-2301E. Flights entering from the north must avoid the manned ranges, R-2304/ETAC if Hot, and flights utilizing SELLS AB. Transit through SELLS AB must be coordinated with the SELLS AB user.

★2.3.3.4. Departing SELLS CDE or R-2301E. Flights departing SELLS CD or R-2301E may use the Ajo Transition Area between 10,000' and 24,000'. Exit to the north at even altitudes and avoid the four manned ranges in accordance with Chapter 3. Flights exiting to the north may depart through SELLS AB if coordinated with the SELLS AB user. If departing SELLS CD to the north, proceed to GUNST (GBN 165/46 N32-12.283' W112-38.367') then through the Ajo Transition **area**.

2.3.3.6. SELLS, AAHI, STAC and Range 1 Deconfliction. Extreme caution must be used by flights operating in SELLS, AAHI, and STAC when AR-647 is active. Air refueling missions above 17,999' use the standard altimeter setting of 29.92, while flights in SELLS, AAHI and STAC use the GBAFAF local altimeter setting.

★2.4. AR-647 (Figure 2.2). The AR-647 refueling anchor overlies SELLS, the southeast portion of AAHI and STAC. When activated, AR-647 restricts the use of SELLS, AAHI and STAC.

★2.4.1. AR-647 Deconfliction. SELLS, AAHI and STAC missions must remain at least 1,000' above or below the AR-647 block. AR-647 Low-block extends from 10,000' to **17,000'**; AR-647 Mid-block extends from **FL180** to FL230; AR-647 High-block extends from FL 240 to FL290. The High and Low blocks will not be scheduled simultaneously. On rare occasions the Low and Mid or Mid and High blocks may be scheduled simultaneously. When AR-647 is active all flights scheduled to work in SELLS, AAHI and STAC airspace will confirm BMGR range NOTAMs with Range Operations. All aircraft operating above 10,000' will squawk mode IIC.

★2.4.2. AR-647 Entry/Exit Procedures. All military flights using AR-647 are under Military Assumes Responsibility for Separation of Aircraft (MARSA) flight rules. To avoid possible conflicts with aircraft entering/exiting AR-647 and aircraft operating in SELLS MOA, AAHI and STAC airspace the following procedures will be adhered to:

- Tanker aircraft will obtain clearance from Range Operations to enter and activate AR-647 on VHF 120.55. Tanker aircraft will clear receivers to enter AR-647 on 120.55. NOTE: this is not an Air Traffic Control (ATC) clearance.
- Receivers will contact Range Operations and the tanker aircraft on 120.55 for clearance into AR-647. Aircraft without VHF capability will coordinate with the

tanker unit and 56 RMO/ASM for use of UHF refueling frequency during entry and exit.

- Refueling operations will be conducted on the appropriate UHF frequency published in FLIP AP/1B. It is not necessary for receivers to monitor 120.55 during refueling operations.
- Flights requesting Military Radar Unit (MRU) assistance must coordinate with O'Grady MRU (DSN 896-3882/3880) and the scheduled tanker unit.
- Receivers will coordinate with Range Operations on 120.55 prior to exiting AR-647 airspace and entering scheduled SELLS MOA or BMGR airspace.

★2.5 Manned Ranges. Four manned ranges are available for surface attack training. Targets are score-capable, although attack headings are restricted. See Chapter 3 for manned range procedures **and airspace descriptions and restrictions.**

2.5.1. Ranges 1 and 2. Ranges 1 and 2 lie within R-2301E; however, the pop-up patterns extend into R-2305, and the nuclear patterns extend into R-2305 and R-2304. The NTAC/ STAC complex is 5NM west of the main towers. The AAHI airspace, overlying Ranges 1, 2, and 4 west of Highway 85 begins at 25,000'.

★2.5.2. Range 3. Range 3 lies within R-2305; however, the nuclear **and pop** patterns extend into the ETAC portion of R-2304, requiring scheduling ETAC for this type of delivery.

2.5.3. Range 4. Range 4 and its patterns lie entirely within R-2301E. The northern border of R-2301 is just 1NM north of the right conventional target; NTAC airspace begins 5NM south of the main tower, and Range 2 is 12NM southeast of the main tower. The AAHI airspace, overlying Ranges 1, 2, and 4 west of Highway 85 begins at 25,000'.

2.5.4. Night Weapons Delivery. Night range operations begin at official sunset. All manned ranges are night capable, with electric lighting available on the right conventional target only.

2.6. Tactical Range Capabilities. There are three unmanned tactical bombing (TAC) ranges, and one air combat tactics range within the confines of the Goldwater AF Range Complex. The TAC ranges include North, South, and East TAC. All have a main airfield and forward airfield target complexes, as well as FEBA and CAS target complexes. Tactical ranges operate without the supervision of an RCO.

2.6.1. Live Aerial Gunnery. Live Aerial Gunnery, generally referred to as Aerial Gunnery Target System (AGTS), is occasionally conducted in the western sector of AAHI. Live Aerial Gunnery must be denoted on the Range Schedule. Procedures are described in paragraph 4.12.4.

2.6.2. North/South Tactical Range (NTAC/STAC). The N/STAC complex lies at the eastern end of R-2301E, between the Granite and Growler Mountains; Ranges 1 and 2 lie to the east, Range 4 to the north, and the Cabeza Prieta National Wildlife Refuge (CPNWR) to the south. NTAC and STAC impact areas share a common border, a double-bladed line running from the

Water Well at the east end, WNW to the Aguila Mountains. Airspace extends from the surface to 24,000'. NTAC and STAC are normally scheduled and used separately, except for Large Force Exercises (LFEs), Live AGMs, and other special requirements.

2.6.3. East Tactical Range (ETAC). ETAC lies within R-2304. ETAC lies to the southeast of GBFAF; Range 3 borders on the west, with a double-bladed line defining the boundary. The Sand Tank Mountains border the north and east; on the southern border lie the Saucedo Mountains and the holding/entry airspace for the manned ranges. ETAC shares airspace with Range 3's nuclear and pop patterns, and requires special attention when joint use is in effect. ETAC borders and overlies Native American land. Its airspace extends from the surface to 24,000'. When transiting to/from and operating within R2304, avoid the noise-sensitive town of Kaka (**12SUA763975**) by 2 NM.

2.6.4. Televised Optical Scoring System (TOSS). TOSS is available on STAC, from 0700 - 1700 L MST. TOSS procedures are described in paragraph 4.10.7.

★2.6.5. Ground Forward Air Controller (GFAC) Procedures. Occasionally GFACs will control fighter missions from designated locations on the TAC ranges. When GFAC deployment is approved, Range Scheduling will annotate the “**BMGR NOTAMs**” page of the range scheduling website with the GFAC callsign and which Observation Point (OP) they are scheduled on. Range Operations will advise all flights of GFAC callsign and working frequency upon initial check-in. For safety considerations, all Flights will attempt to make contact with any GFAC reported within range airspace, even if not planning to utilize them. For safety of the GFAC personnel, unit schedulers must ensure that all LIVE DROP, LIVE FIRE AGM and LASER missions are posted on the BMGR schedule. Flight Leads working with GFACs will ensure that Range Operations is aware of the working frequency being used. **GFACs will NOT clear fighters to expend ordnance without having a visual on the fighters.**

★2.6.5.1. GFAC Liaison. A GFAC liaison, knowledgeable of GFAC procedures, will be positioned within Range Ops (GBFAF) whenever GFACs are on the range. The GFAC liaison will be the focal point of contact for all squadron questions as well as debriefing the missions via landline at DSN 896-**5237**. The liaison is responsible to ensure that GFACs are advised to clear the ranges for all LIVE AGM firing, where applicable. For safety reasons, **units that have not operated on the BMGR in the previous 12 month period**, a face-to-face BMGR briefing (casual user unit, GFAC, and 56 RMO representative) is required. Contact 56 RMO/ASMS for coordination details.

2.6.5.2. GFAC Positions. GFACs will not occupy or control from any points other than listed in the specific TAC range paragraphs without specific written approval from 56 RMO.

2.6.5.3. GFAC Movement. GFACs will not enter or exit the range, or depart the OP, without specific approval from Range Operations.

2.6.5.4. GFAC Communication. GFACs will maintain two-way radio communication with Range Operations at all times. In the absence of a pre-briefed frequency and when a dedicated Ultra High Frequency (UHF) radio is not available, GFACs will use and monitor the appropriate

primary range frequency.

2.6.5.5. GFAC and LASER Use. GFACs will utilize appropriate LASER safety goggles when LASER missions are in progress, or will clear the range prior to the LASER mission's range time, in order to not restrict LASER use on the TAC ranges.

2.6.5.6. GFAC and LIVEFIRE AGM. GFACs must exit the appropriate TAC range(s) for LIVE FIRE AGM missions, due to the large footprint of the weapon. Exception: OP Charlie Hill, when ETAC LIVE Maverick Target 318 is used. Charlie Hill lies outside the northwest corner of ETAC, and is outside the footprint of the AGM.

2.6.5.7. GFAC Equipment. GFACs should bring all the equipment they need to operate on the ranges, including at least one cellular phone at each OP to facilitate coordination of complex issues and minimize radio congestion.

2.6.5.8. GFAC Controlled Night Missions.

2.6.5.8.1. Prerequisite. GFACs will have controlled a day mission at the same site as they will be controlling a night mission.

2.6.5.8.2. Marking. GFACs will mark the site with three flashing beacons (may be covert when Night Vision Goggles (NVG) are used by the controlled aircraft), in the shape of a triangle.

2.6.5.8.3. Positive Identification. No ordnance expenditure or LASING is authorized until each aircraft has called a positive identification of the GFAC site beacons.

2.7. General Range Restrictions.

2.7.1. Preplanning. Missions may not be conducted on any range without:

2.7.1.1. Mission Planning. Aircrew must have the most current edition of this supplement in their possession for mission planning. Strict adherence to ordnance, target, and LASER restrictions is essential. Additionally, the restricted areas are subdivided, and proper entry/ exit procedures are crucial to flight safety.

★2.7.1.1.1. ANG SNOWBIRD Units. ANG SNOWBIRD units will not expend High Explosive (HE) ordnance until a dedicated range orientation/overflight mission (dry/no ordnance, training or inert ordnance) is accomplished first. First sorties of the deployment will not be HE or live missions.

2.7.1.2. Confirmed Range Times. Confirm range times with Luke Range Scheduling between 48 hours prior and 1000 hours (MST) local of the day prior to the scheduled range time. If not confirmed within this window, range times are taken back.

2.7.2. Special Events Requiring Approval. Gain written approval from 56 RMO Director for dropping live ordnance other than the authorized ordnance referenced in this supplement at paragraphs 3.7 and 4.3.

2.7.3. Range Operations Coordination. Contact Range Operations before entering the BMGR complex. Range Operations must be aware of LASER use, live ordnance deliveries, MARSA operations, and use of other than established working frequencies.

2.8. Emergency Procedures/Unusual Situations. (Note: GBAFAF Tower monitors Luke SOF UHF 369.1)

2.8.1. Emergencies. If your flight path will penetrate another range's airspace, make a call on Guard, i.e., "this is Tiger 2, F-16, IFE, departing AIR-TO-AIR High, direct Gila Bend at 8,000".

2.8.2. Emergency with No Radio Communications (NORDO). Squawk emergency, use airborne radar to clear your flight path.

2.8.3. Runaway Gun. Various ranges are located in close proximity; flight briefing should emphasize procedures for your specific range. In the event of a runaway gun following a firing pass: recover the aircraft, employ appropriate aircraft procedures, and fly straight ahead until the gun ceases to fire. On Ranges 1 and 3, personnel may be 5NM west of the strafe targets; a turn out of traffic is necessary if flight safety permits.

★2.8.4. Hung Ordnance. 56 FW aircraft with live ordnance that will not jettison will recover at Gila Bend AFAF. Inert hung ordnance procedures will be in according to LAFBI 11-203 and AFI 11-aircraft series. Other users will follow their own local hung live/inert ordnance procedures, realizing that Gila Bend AFAF is available for recovery. All aircraft will declare an emergency when diverting to Gila Bend AFAF with hung live ordnance. Follow control tower instructions for parking.

2.8.5. Jettison. If required, call on Guard to coordinate. Jettison High Explosive (HE) ordnance on HE Hill, armed if possible and perform an adequate safe escape maneuver to ensure frag clearance. **Exception:** Missiles and rockets will be jettisoned safe. Attempt to jettison live ordnance above 3,000' AGL, if at all possible, in case of UXO detonation. Jettison inert or training ordnance on any appropriate area/target, except HE hill.

2.8.6. EOD Coordination. Notify range operations upon departure from the range of any unusual EOD requirements. Specifically, inform them whenever live ordnance is jettisoned or delivered anywhere on other than an authorized target, and/or does not function properly. Upon mission completion, submit the completed live ordnance expenditure report (Figure 4.19) and fax to the addressees listed on the bottom of that page within 24 hours.

2.8.7. Off-range Release. Flights will notify Range Ops of all off-range releases as soon as possible/practical. Note the ordnance impact position or as a minimum, the aircraft parameters, release point and type ordnance released. Range Ops will immediately notify EOD and the Luke AFB Command Post of all known or suspected off-range releases.

★2.8.8. Inadvertent Release Procedures. (Multiple releases from a TER or bomb dispenser are not considered to be an inadvertent release.) The flight leader is responsible for initiating the inadvertent release report to Range Operations. Range Operations will

relay to the Luke Command Post, who will notify the using agency's Command Post of the inadvertent release. The following information will be included in the report: callsign, type of aircraft; time of and description of incident; impact point, if known; specifically, on or off-range.

★2.8.9. Border Patrol (BP) Procedures. Occasionally, the Border Patrol is in hot pursuit that will take them into the BMGR. When this occurs, the BP will contact Gila Bend Air Force Auxiliary Field (GBAFAF) security forces or the Range Operations Control Center (ROCC). GBAFAF will notify the affected ranges and aircraft, restricting all operations to dry and 500 ' AGL.

★2.8.9.1. Manned ranges will conduct normal operations with the following restriction: No strafe on manned ranges 1, 2 and possibly 4 if the pursuit moves north.

★2.8.9.2. If a helicopter is being utilized in the BP pursuit, the code words "Boar Star Air Ops" will be used and all aircraft will be restricted to 1,000' AGL.

★2.8.9.3. BP will advise GBAFAF when their mission no longer impacts the BMGR.

2.9. Authorized Range Overflight.

★2.9.1. Range Closures. Only simulated weapons deliveries, IAW aircraft specific directives, and eye safe laser operations are authorized during range closures. Chaff and flares are authorized IAW standard operating procedures.

★2.9.1.1. Range Closures and No Personnel On Range. During range closures with no personnel on range—for example, nights during EOD/maintenance closures—missions may be scheduled for dry-only operations with no minimum altitude restrictions other than standard operating procedures.

★2.9.2. EOD Operations. During EOD demolition operations, missions may be scheduled for dry only operations above 10,000' AGL. During EOD operations without demolitions, missions may be scheduled for dry only operations above 3,000' AGL.

★2.9.3. Non-EOD Operations. During any non-EOD operations involving personnel on the range—for example, pronghorn antelope inspections and range maintenance—missions may be scheduled for dry only operations above 500' AGL.

2.9.4. Overflight of the Cabeza Prieta National Wildlife Refuge (CPNWR). Minimum altitude over the CPNWR is 1,500' AGL, except when on a scheduled MTR.

2.9.5. Overflight outside of Impact Areas. Overflying R-2305, R-2301E north and/or east of the NTAC or STAC complex, or R-2304 south of ETAC can be accomplished at VFR hemispheric altitudes below 18,000' or at any altitude above. Avoid the manned ranges below 24,000' within 4 NM of the range tower or below 8,000' outside the 4 NM radius but within the POP or nuclear patterns. If in doubt as to the status of manned ranges, contact the RCO/Flight Lead to coordinate a transit altitude.

2.10. General Aviation/Air Evacuation Corridor. This corridor extends from GBAFAF to the Ajo Airport over Arizona Highway 85 at 500' AGL (1,000' AGL at night). Visual Flight Rules (VFR) rules govern civilian flights through the Goldwater Air Force Range. Civilian Air evacuation flights ("Lifeguard") will be given priority over all other air traffic except in-flight emergencies. The "Air Evac" call sign (USAF) will be used only when the aircraft is on an actual air evacuation mission. DPS "Ranger" call signs must indicate they are on an air evacuation mission to receive priority. Military aircraft on manned ranges will be instructed to remain clear of Highway 85 or to transit the highway 1000' above the air evacuation/general aviation aircraft.

2.10.1. Corridor Activation. Range Operations will advise RCOs on the manned ranges prior to activating the General Aviation/Air Evacuation Corridor.

★2.11. Bird Watch Procedures. The RCO and GBAFAF Tower will issue bird hazard warnings and ensure both Range Operations and Luke Command Post are notified. The RCO/Range Operations will advise flights if the bird hazard condition is other than "Low" according to the following criteria:

2.11.1. Bird Watch Condition "Severe". Heavy concentration of birds on or immediately above the target area that represents an immediate hazard to safe flying operations. The range will be closed.

★2.11.2. Bird Watch Condition "Moderate". Concentration of birds observable in locations which represents a probable hazard to safe flying operations. For 56 FW, only required syllabus events **or Ready Aircrew Program (RAP) required events** may be flown.

2.11.3. Bird Watch Condition "Low". No restrictions.

2.12. LASER Operations. IAW AFI 11-214. Most LASERs are authorized for the BMGR ranges. Use of Combat (non eye-safe) LASER is not authorized ON ANY RANGE unless coordinated with Range Scheduling and reflected on the BMGR Range Schedule. Combat Laser use is not authorized when overflying ground personnel.

2.12.1. General.

2.12.1.1. Target Certification. All targets are certified for LASER use.

2.12.1.2. Target ID. Targets must be positively identified in the system video prior to firing the LASER. Scanning of targets while lasing (Bush Lasing) is not authorized. No LASER is to be fired above the horizon. No lasing of targets if standing water is observed within 3000' of the target.

2.12.1.3. LASER Termination. Aircrew will immediately terminate LASER operations if personnel are observed in the target area, equipment malfunction is observed, target is lost in field of view, or anytime LASER safety cannot be assured.

2.12.1.4. PAQ-1, PAQ-3 and GLLD Use. Use of the PAQ-1, PAQ-3, and GLLD requires that the LASER be tripod mounted, that the lasing point be higher in elevation than the illuminated target, and that personnel use proper eye protection (1060 Nanometer Goggles). Minimum required elevation difference is 200'.

2.12.2. Manned Ranges. On the manned ranges, LANTIRN Targeting Pods are certified for use. All bomb targets and radar reflectors are approved for Combat LASER operations. However, due to the infrequency of Combat LASER operations on manned ranges, provide the Contractor with at least 24 hours notice before performing Combat LASER operations.

2.12.2.1. Minimum Altitudes. When lasing, the minimum altitude on final will be 1000' AGL outside of 5NM, and 500' AGL inside of 3 1/2 NM of the target. Lasing will not be performed below 2000 feet AGL while crossing public highways or other active roads (LANTIRN only).

2.12.2.2. Heading Restrictions. Inbound heading on final must be within 10 degrees of the published run-in (or reciprocal) heading.

2.12.2.3. NUC Target and/or Delayed Lasing. Practice lasing on the NUC target is authorized once established on published downwind parameters. Delayed lasing for loft deliveries is authorized when the designator turn/recovery is away from the range towers.

2.12.2.4. POPs. Lasing during pop deliveries is authorized only after roll-in.

2.12.3. TAC Ranges. On the TAC ranges, the LANTIRN Targeting Pod, PAVE PENNY, Army LAAT and TADS, PAQ-1/3, GLLD and SOFLAM LASERs are authorized.

2.12.4. Range Contractor Preparation. The Contractor will take reasonable measures to ensure:

2.12.4.1. Nonessential, unprotected personnel are excluded from ranges where LASERs are in use.

2.12.4.2. Windows, mirrors, chrome, and other reflective surfaces have been removed from the targets, or painted with non-reflective paint.

2.12.5. Ground Personnel. Ground personnel will not view the LASER designator aircraft or target with magnifying optics (i.e., binoculars, telescopes, or through-the-lens viewfinder camera), nor may direct-viewing magnifying optics associated with EC equipment (such as M-33) be used during LASER missions) unless filters approved by the Luke AFB Bio-environmental Engineer are used. Magnifying optics in which a television display is used (indirect viewing) are permitted.

2.12.6. Simulated LASER Target (SLT).

★2.12.6.1. Primary SLT. The primary SLT is permanently positioned at GBFAF, **northeast** of the **control** tower, between the tower and the taxiway. Request the PAVE PENNY pattern from GBFAF tower on 324.1/ 127.75. Inbound headings for the SLT pattern are either 350 or

290, with right hand turns; keep the pattern east of the field and below 3,800'. If directed to clear the pattern, hold at least 3NM east of the field and avoid Range 3.

★2.12.6.2. Secondary SLT. A secondary SLT is available on Range 3 whenever Range 3 is scheduled for A-10 traffic. The SLT pattern on Range 3 is right range, left traffic. The SLT is located just east of the foul line, **between the Main Tower and Right Side, Target 1 run-in line.**

2.13. Countermeasures/Threat Simulator Use. The capabilities of the BMGR are the following:

2.13.1. Chaff Usage.

2.13.1.1. Authorized Chaff. The following types of chaff are authorized IAW the parameters listed below:

	R-2301E	R-2304	R-2305	SELLS
RR-170	To FL 350	To 5,000' AGL	To 5,000' AGL	Not Authorized
RR-188	To FL 350	To FL 240	To FL 240	To FL 350

2.13.1.2. Other Chaff. Other types of chaff may be approved on a case-by-case basis. Submit requests in writing to: 56 OSS/OSTW Info: 56 RMO/ASM
6605 N. 140th Drive 6605 N. 140th Drive
Luke AFB, AZ 85309-1934 Luke AFB, AZ 85309-1934

2.13.2. Flares and Smokey Devils. Employment is authorized on all ranges according to applicable regulations. Caution will be used to avoid employment over ground personnel/structures.

2.13.2.1. F-16 Flare Employment. F-16 Flare dispensing is authorized in:

- SELLS MOA above 3,000' AGL.
- Restricted airspace above government controlled land (R-2301E/W, 2304, 2305)
 - No fire hazard - 300' AGL minimum.
 - Fire Hazard - 1000' AGL minimum.

★2.13.3. **Threat/Smokey SAM Simulators.** **Threat Simulators and Smokey SAMs** are available for aircrew training.

★2.13.3.1. **Threat Simulators are typically available on the Tactical Ranges during peak range usage. Coordinate with threat operators on the primary range frequency or pre-coordinate through gbn.threatops@luke.af.mil . Threat emitter information can be found at <http://www.luke.af.mil/rmo/aros/threatemitters.html> . Threat emitter locations and operating hours are posted daily on the *BMGR Range NOTAMs* webpage: <http://www.luke.af.mil/rmo/aros/dailynotams.html>**

RANGE	THREAT CALLSIGN	CONTACT FREQUENCY
NTAC	Weasel	Prim: 296.5
STAC	Badger	Prim: 315.0
ETAC	Ferret	Prim: 305.6

Table 2.2.

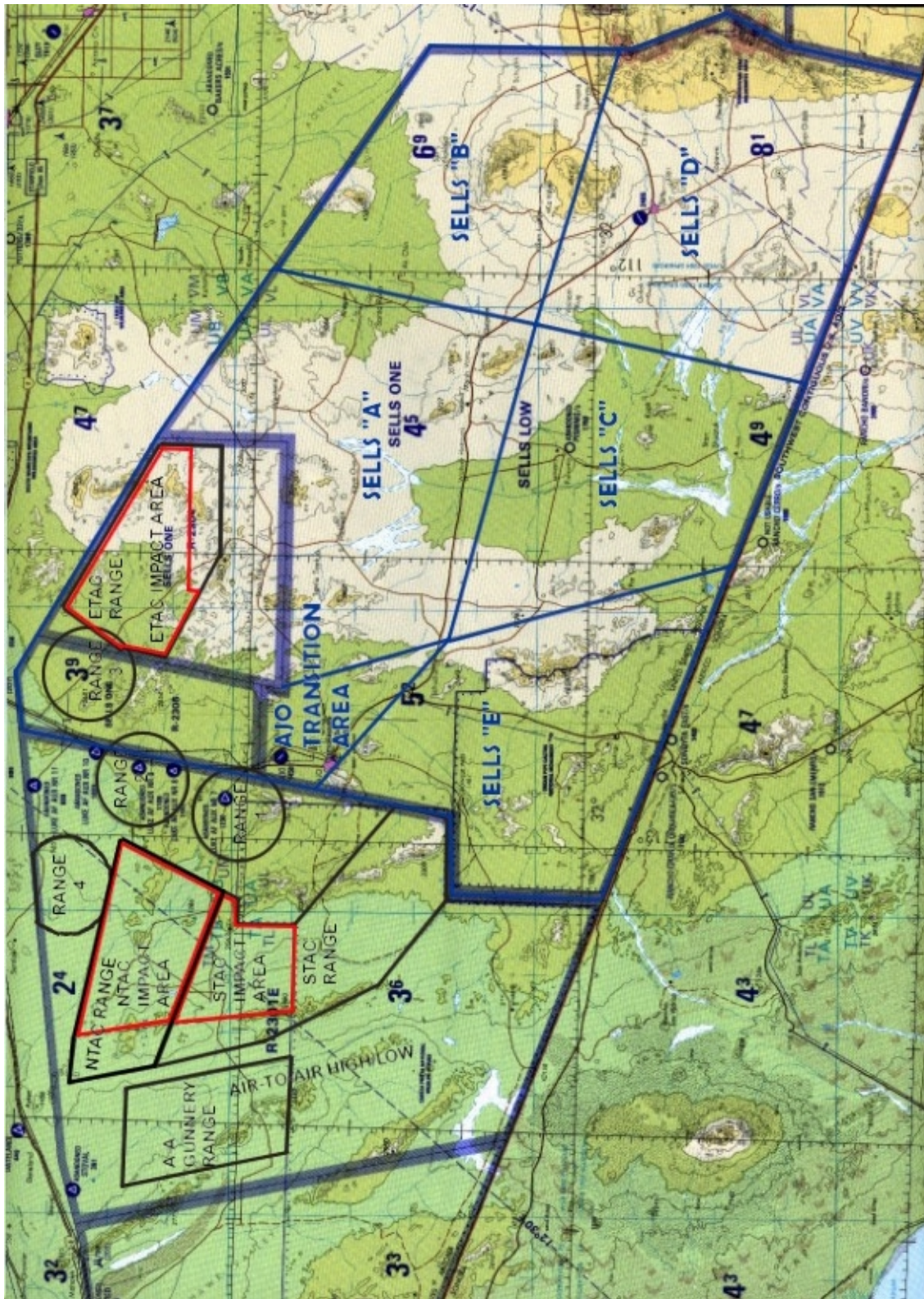
2.13.3.2. Launch Overflight. WARNING: Smokey SAMs have a nominal altitude of 1,500 feet and should be overflown at least 2,000 feet AGL. Smokey SAM rocket fragments are a FOD hazard and must be avoided. Do not underfly the rocket, as it may take 25 seconds to fall back to earth.

★2.13.3.3. Scheduling. **On ‘Manned-Ranges’, the use of Smokey SAM requires RMO coordination to locate and set up the launchers with minimal impact on other ranges. On Tactical Ranges, Smoky SAMs are available whenever the threat Simulator(s) are operational.** Full coordination must include Range Scheduling, Range QAE and the Contractor, as they task the personnel who operate the system.

2.13.4. HAVE QUICK Use. HAVE QUICK or any non-standard frequency must be coordinated with Range Operations, and the flight must monitor VHF 149.0 (272.1 if UHF only capable) to provide Range Operations with a means to contact the flight. During large force exercises supported by E-3A assets, HAVE QUICK operations are authorized provided the E-3A has radio contact with all airborne players and with Range Operations.

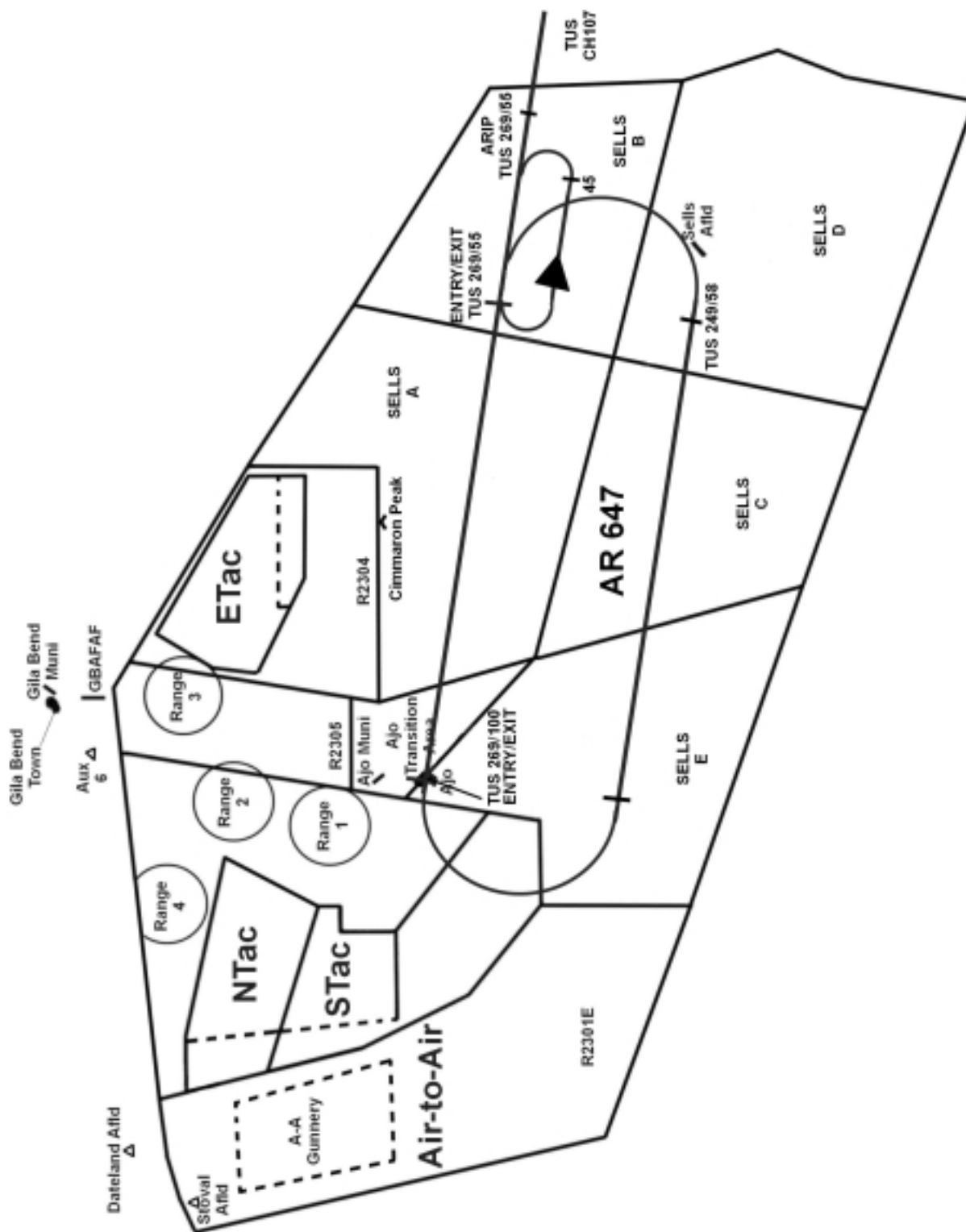
2.13.5. Electronic Counter Measures (ECM) Pod Usage. Call 56 RMO/ASM to coordinate EC clearances.

Overview of the BMGR and SELLS MOA



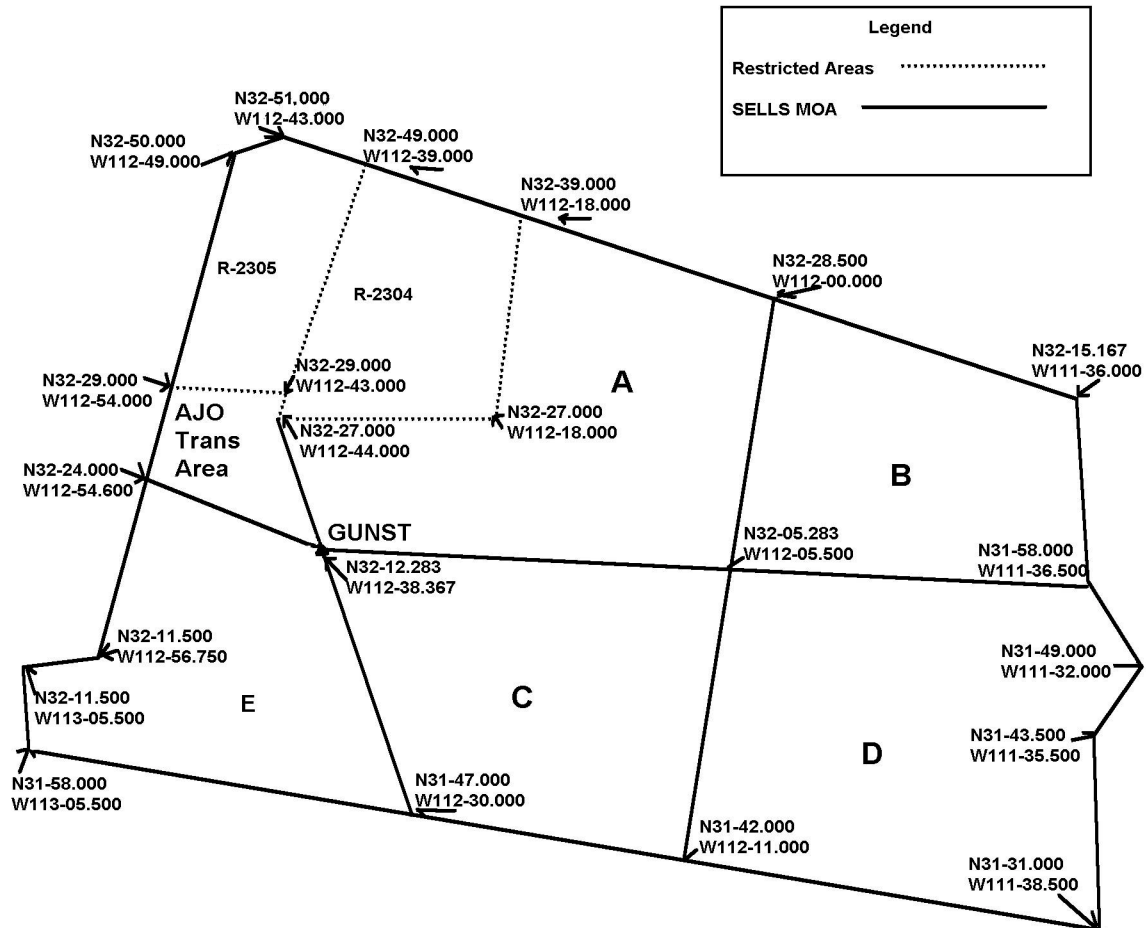
★Figure 2.1

Overview of AR-647/SELLS MOA



★Figure 2.2

SELLS MOA/ATCAA



SELLS A/B LOW MOA
3,000 AGL through 9,500' MSL

SELLS C/D/E LOW MOA
3,000 AGL through **9,500'** MSL

SELLS A/B MOA
10,000' MSL to but not including FL 180

SELLS C/D/E MOA
10,000' MSL to but not including FL 180

SELLS ATCAA
FL 180 through FL 510

Notes: -Maintain a minimum of **FL 250** over R-2304 if ETAC is active.
-Maintain FL 250 or above over Ajo Transition Area and R-2305 when active. Check with Range Ops for ETAC/R-2304/R-2305 status.

★Figure 2.3

BMGR EXPENDITURE REPORT FORMAT

★1. All flights (**except Luke AFB-based**) will pass an expenditure report to Range Ops upon Range exit. Contact Range Ops on 272.1. If this report will interfere with Flight Safety, flights will call or fax the report to Range Ops at the earliest opportunity.

- Range Ops Commercial (Voice) 520-683-5258 Fax 520-683-6195
- Range Ops (Voice) DSN 896-5258 FAX 896-6195

★2. **CALLSIGN** _____ **NUMBER/TYPE AIRCRAFT** _____

EXPENDITURES: (format is **ORDNANCE/RANGE(S)/TARGET(S)**)

BULLETS _____ **RANGE** _____ **TARGET(S)** _____
(I.E. four hundred 20mm/ETAC/T315)

BOMBS _____ **RANGE** _____ **TARGET(S)** _____
(I.E. twelve BDU-33/NTAC/T102, or two BDU-50/STAC/T208, or one Inert GBU-12/ETAC/T305, or two Live MK-84/STAC/T205. Specify if INERT/LIVE where appropriate.)

ROCKETS _____ **RANGE** _____ **TARGET(S)** _____
(I.E. eight 2.75" Rockets/STAC/T204)

CHAFF/FLARES _____
(I.E. 10 bundles Chaff, 4 Flares)

OTHER _____ **RANGE** _____ **TARGET(S)** _____
(I.E. ten LIVE AGM-114 Missiles/ETAC/T318, or one Live AGM-65/ETAC/T318)

3. To minimize radio chatter, only report what was expended. You need not state "zero Mavericks, Bombs, and bullets".

4. Range Operations will compile this data electronically and forward to 56 RMO/ASM.

★Figure 2.4 (SAMPLE)

Chapter 3

MANNED RANGES

3.1. General. This chapter defines the BMGR Complex manned ranges, providing procedures for operations on Ranges 1-4.

★3.2. Airspace Defined. Vertical airspace for the manned ranges extends from the surface up to and including 24,000' within a **4NM radius** circle, and up to 8,000' outside of the circle (Figure 3.1). The **4NM** circle is centered on the nuclear target on Ranges 1, 2, and 4. On Range 3, the **4NM** circle is centered on the left conventional target. When ETAC traffic is other than joint-use helicopters, the circle does not extend past the Range 3/ ETAC boundary road. Specific lateral limits of manned ranges are difficult to define due to the wide variety of patterns and deliveries authorized. Assume a hot manned range extends 15 NM east of the main tower, since the extended patterns are authorized from the east. When the pop pattern is active, aircraft may be flying out as far as 8NM southeast or northeast of the conventional targets. Also assume a hot manned range is active west of the tower, since box patterns are authorized from the west.

3.3 Classes of Ranges. All manned ranges are scheduled as Class A unless otherwise specified in the range request. BMGR manned ranges are not normally operated under Class B rules (scoring only, no RCO) since RCO and scoring personnel deploy and operate as a team. Class C use (unmanned) is authorized, but must be specifically scheduled as such. Overflight of manned range airspace may also be scheduled, and should be annotated as such.

★3.4. Communications. The manned ranges are equipped with a multi-channel UHF, usually set on Range Operations frequency, a fixed-channel UHF, with a simulcast capability on UHF GUARD, and a **ground** radio for communications with Range Operations and other range activities. For all operations, IAW AFI 13-212, "The RCO must maintain continuous radio communication with all aircraft on the range, and will clear each aircraft before every hot or dry pass and each LASER designation. The RCO must clear all ordnance deliveries before release." All RCO transmissions (**except "Cleared Hot/Dry"**) will be acknowledged. If the range working frequency is unusable, BMGR common backup UHF 335.9 is available.

3.5. Weather Requirements. IAW aircraft specific directives. RCOs will close the ranges when the ceiling is less than 1,500' for day operations, 3,000' for night operations, and/or visibility is less than 3 NM for day and 5 NM for night operations. Pilots will discontinue events and advise the RCO whenever weather prevents positive range or target identification throughout the pattern. Range Operations will also advise the Command Posts at Luke, Davis-Monthan, and Tucson IAP when surface winds on the BMGR complex exceed 35 KTS. Range winds are available from Range Operations on request. When sustained winds exceed 25 KTS (including gusts), strafe targets will be lowered. Range operations will be suspended if sustained (including gusts) winds exceed 35 KTS.

3.6. Targets. See Figure 3.6 for a typical range layout. Target, reference points, and radar reflector coordinates are in Figure 3.12.

3.6.1. Strafe. There are four scored strafe targets, two on each side of the tower, numbered 1 and 2 from inside to outside of tower centerline. The aiming reference is a drag chute centered approximately 11' AGL (Figure 3.9). Scoring is by electronic acoustiscore equipment. The strafe pits may be "restricted" when there is insufficient soil depth to reduce bullet velocity, when the soil consistency turns to a powdery texture, when standing water exists within the pits or on the aprons around the pits, and/or when the pit soil has crusted to an extent where it does not break when walked upon. When the strafe pits on Ranges 2 and 4 are restricted for any of the above reasons, LAS is authorized only for A-10 aircraft, and only if they do not penetrate the 3-9 line of the strafe targets. On Ranges 1 and 3, it is impossible to ensure that personnel are not behind the range; therefore, LAS will not be authorized when the pits are restricted.

3.6.2. Tactical Strafe. Each range has a tactical strafe target consisting of a salvaged military vehicle, located to the north of the right range, number two strafe panel (Figure 3.7), 3500' from the LAS foul line. The foul line also applies to strafing on this "soft" target.

3.6.3. Conventional Circle. There are two conventional targets, one on each side of the range, inside a 300' radius graded circle, for bomb, rocket, and High Angle Strafe (HAS) events. The target consists of a salvaged vehicle with the engine/ transmission removed. See Figure 3.7 for details.

3.6.4. Nuclear Weapons Delivery (NWD). The simulated NWD target (Figure 3.8) is a large white identifiable object inside concentric circles, at the end of a 7 NM run-in line, with four reference points situated at approximately 10,000' intervals.

3.6.4.1. Radar Reflectors/Visual Update Markers. Each range has radar reflectors at various locations for offset aiming points (OAPs). Visual update markers are located at 10,000', 20,000', 30,000', and an entry marker consisting of white barrels welded together to form the roman numeral for that range located at the 40/ 45,000' IP.

3.6.4.2. Box Pattern on NUC Target. When box patterns are performed on the nuclear target, standard direction of traffic rules apply: the range towers must be kept on the inside of the turn circle.

3.6.5. Applied Tactics Orientation Target (ATOT). The ATOT is a salvaged military vehicle located approximately 1000' outside the conventional target, opposite the NWD side. Its position is not identified with specific run-in lines, distance radii, or cleared out areas.

3.6.6. Scoring. Scoring is accomplished via triangulation for bombs, rockets and HAS; via acoustiscore for LAS; and visually for Tactical Strafe, "hit" or "miss" recorded. See Chapter 5 for fouls.

3.7. Authorized Ordnance. Expenditures on manned ranges are limited to training ordnance. Exceptions require approval through 56 RMO/Director, and coordination with EOD and the QAE. NOTE: All cluster sub-munition dispensing ordnance is prohibited on BMGR.

3.7.1. Gun. Target Practice (TP) and TP Tracer Round may be expended on manned ranges. API, ATI, HE, HEI and SAPHEI ammunition is prohibited.

3.7.2. Bombs. Inert bombs will not be expended on manned ranges, except during inflight emergencies involving jettison of external stores. Practice shapes (BDU-38, etc.) may be expended on NWD targets with 56 RMO approval. EOD will be notified.

3.7.3. 2.75" Rockets. Target Practice (TP) rockets may be expended on any scoreable target (except strafe targets). White Phosphorous (WP) filled rockets may be expended on the nuclear target only.

3.8. Ordnance Procedures. System checks not involving activation of the weapons circuits may be accomplished outside of the range. Activation of the weapons release circuit (timer, auto modes, master arm, etc.) outside of range real estate (military reservation) boundaries is expressly prohibited unless specific waiver provisions authorize such actions.

3.8.1. Controlled Jettison Procedures. (These procedures are not intended to deny the pilot the option of immediate jettison for safety.) Jettison external tanks, training ordnance, and launchers/ dispensers on any open manned range. Obtain clearance from the RCO, fly toward the designated circle at 1,000' AGL minimum, heading approximately west, and jettison stores when over the target. If jettison is unsuccessful, avoid flying over buildings or highways while repositioning.

★3.8.2. Inadvertent Release Procedures. (Multiple releases from a TER or bomb dispenser are not considered to be an inadvertent release.) The flight leader is responsible for initiating the inadvertent release report to Range Operations, who will relay to the Luke Command Post, who will notify the using agency's Command Post of the inadvertent release. The following information will be included in the report: callsign, type of aircraft; time of and description of incident; impact point, if known; specifically, on or off-range. **The RCO will immediately notify the ROCC and document any abnormal occurrence (jettison, inadvertent release, range incursions, etc.) on LAFB Form 57, Range Officer's Report. The ROCC will immediately notify the QAE and RMO by telephone and follow-up with a Range Incident Report.**

3.9. Day Conventional Weapons Delivery. Day range operations cease at official sunset.

3.9.1. Normal Procedures. A maximum of four aircraft are authorized in the pattern. The first weapons delivery pattern or pass on the range for any event may be hot (First Run Attack). Minimums are according to applicable directives for each aircraft system and/or each flying unit involved.. "Flight Lead Control" for dry passes (e.g. Maverick) is authorized, at RCO discretion; pattern calls will continue to be made.

3.9.2. Patterns. All ranges allow box/curve patterns and first run attacks from the east or west.

★3.9.2.1. High Altitude Release Bomb (HARB). The 4NM **radius** circle is centered on the left range to optimize delivery on the right range. HARB box patterns may be flown either left or

right turns, on any target, from the east or west. When F-16 HARBs are being flown on Range 1 or 2, the adjacent range must use the same DIRECTION OF TURN if F-16s intend to perform HARBs on that range. This restriction only applies to Ranges 1 and 2, and only to “fast-movers”. Flight Lead control may be authorized for this event due to the difficulty the RCO has visually acquiring fighter aircraft at high altitudes. Responsibility for safe delivery rests with the Flight Lead. **Under ‘flight lead control’ during HADB/HARB events, aircraft releasing actual or simulated ordnance will call “in Hot/Dry” or “off Dry”, as appropriate. No clearance to expend will be transmitted from the RCO or flight lead. The intent is to issue an advisory radio call to the RCO/flight members that an aircraft is committed to a weapons release pass. RCO’s will continue to spot actual ordnance releases to validate weapons expenditure and impact location.**

3.9.2.2. Pop Patterns. When F-16s are performing POPs on Ranges 1, 2, and/or 3, the adjacent range to the north must use the same direction of turn. Therefore, if Range 1 F-16s request to use the left range (either conventional or nuclear target) for their POPs, this affects the direction of turn on Ranges 2 and 3. This “domino” effect can hinder mission effectiveness on two other ranges; therefore, unless absolutely necessary, right turn pop patterns will not be used unless the flight coordinates with other ranges’ missions, or target non-availability occurs without prior notice. This restriction only applies to “fast-movers”, and does not apply to Range 4.

3.9.2.3. A/OA-10 Low Angle Strafe (LAS) Pattern. These aircraft may fly the base leg for box or pop-up LAS inside the flank tower provided the gun is not pointed directly at either tower at any time.

3.9.2.4. Rocket Pattern, TP only. Both conventional and NWD targets on all ranges may be used; however, when the NWD circle is used, standard direction of turn rules still apply, i.e., keep the towers on the inside of the turn.

3.9.2.5. Early Turns. Early turn to crosswind (between the towers) is approved with the aircraft nose above the horizon, for standoff rockets and dry passes only. Keep the crosswind turn as far from the main tower as possible.

3.9.2.6. Standard Conventional Pattern. The standard conventional pattern is from east to west. West to east patterns may be flown. When requesting the west-to-east attack heading option, the conventional targets will still be referred to as right and left (the right conventional is always the northern target). The nuclear target may also be used. Direction of traffic will be standard, i.e., keep the towers inside of the turn.

3.10. Simulated Nuclear Weapons Delivery (NWD). The NWD pattern may be flown either day or night.

3.10.1. Normal Procedures. IAW AFI 11-214. A positive means of intra-flight deconfliction for base turns and positioning aircraft on final will be briefed. The weapons release system will not be armed until on the range inside the military reservation boundary.

★3.10.2. NWD Pattern. Pilots will fly a normal race track pattern for both visual and radar deliveries. **LOFT/TOSS run-ins are from east to west only.** The first turn after a LOFT/TOSS delivery will be AWAY from the towers. Base turn will be dictated by the type of delivery being performed. The normal final run-in for NWD radar patterns is 7-10 NM. Flight leads may elect to extend run-ins subject to the following provisions:

3.10.2.1. Ranges 1 and 3. Patterns will be flown so that the final run-in does not exceed 15 NM on Ranges 1 and 3. See additional restriction for joint-use of Range 3/ETAC, paragraph 3.16.10.

3.10.2.2. Range 2. The final run-in on Range 2 is limited to 12 NM, to avoid conflicts with Range 1 nuclear pattern.

★3.10.2.3. Range 4. Patterns on Range 4 will be flown so as to remain above 2,000' until 1 NM West of the Ajo Highway. Do not fly east of the highway and **do not descend below downwind altitude prior to base to avoid conflicts with the Range 2 TMLT patterns.** This will provide a maximum of a 10-12 NM final.

3.10.2.4. Range 1 Downwind. The Range 1 downwind exits the military reservation. Safe the weapons release system until turning base.

3.10.3. Communications. Report over the 40/45 IP with "Call Sign (C/S), final, event". When final run-ins are extended beyond 7 NM, make the "base" and "final" calls with an exact range from the target. After the final call, the RCO will reply "cleared hot," "continue," or "abort". Do not expend ordnance unless cleared hot. Call "off wet/dry," as appropriate, when off target.

3.10.4. Abort Procedures. If the RCO calls for the pass to be aborted, clear the run-in line away from the towers so as to fly outside the 2,000' Nuc circle. After passing the circle, start a normal turn to downwind.

3.11. Night Weapons Delivery. Night range operations begin at official sunset. All manned ranges are night capable, with electric lighting on the right conventional target only.

★3.11.1. Normal Procedures. Maximum aircraft will be IAW AFI 11-214. Minimum altitudes are according to aircraft specific regulations. Night weapons delivery may be conducted on either illuminated targets or unlit targets. Only the right conventional targets have ground markers. Illumination will consist of at least two of the four ground markers at 3, 6, 9, and 12 o'clock to the target. Airborne flares can be used for illumination. Minimum target illumination is either two ground markers, or one airborne flare. Target illumination requirements for aircraft equipped with night navigational/targeting pods **or Night Vision Goggles** will be according to applicable regulations.

3.11.2. Pattern. The night NWD and conventional pattern groundtracks are the same as the day patterns. Do not descend until established on final.

3.11.3. Communications. Additional required radio calls in the night conventional pattern are: "C/S, off wet/dry", when off target, and "C/S, downwind" when abeam the target on downwind.

Radio contact between the RCO, fighters, and flaring aircraft is mandatory throughout all night range operations.

3.11.4. Lighting. Fighter aircraft will select lights according to individual aircraft lighting instructions.

3.11.5. Ranges 1 and 2 Target Configuration and Range Layout. Ranges 1 and 2 night lighting is more tactically oriented. Ranges 1 and 2 have approximately identical configurations. The attack headings are the same as specified for day deliveries. See Figure 3.10 for lighting details.

3.11.6. Ranges 3 and 4 Target Configuration and Range Layout. Ranges 3 and 4 night lighting are more oriented towards student training. The attack headings are the same as specified for day deliveries. See Figure 3.11 for lighting details.

3.11.7. Special Procedures and Precautions:

3.11.7.1. Manned Towers. Extreme caution must be exercised to prevent pointing at or overflying the manned towers. A flashing red beacon identifies the main tower and a steady red light identifies the flank tower.

3.11.7.2. Flare Accountability. The flareship will call off the number of flares dropped. If the number of flares dropped does not equal the flares that ignited, plus the observed duds, the flareship will use hung flare procedures on recovery (fighter type aircraft with dispensers) unless the pilot can account for the flares through other means.

3.11.7.3. Dud Flares. Aircrew will call out the position of dud flares that are seen and the relative position to lit flares. When possible, the RCO will advise the pilots of dud flares and relative position. Abort all passes when ignited, burned out, or dud flares present a hazard.

3.12. LANTIRN (Low Altitude Navigation and Targeting, Infra-Red for Night) Procedures.

3.12.1. Normal Procedures. LANTIRN patterns may be flown on all manned ranges. Attacks may be flown on any scoreable bomb target. Flight leads must notify the RCO before flying TFR patterns on manned ranges. Flight briefings will emphasize potential conflict areas, range boundaries, visual and radar lookout techniques.

3.12.2. Pattern. Downwind altitude will normally be 5500'. Since the downwind leg of the LANTIRN pattern is wider than the nuclear pattern, special care must be taken to avoid conflicts with other range patterns. Patterns will be left-hand race track patterns. Low altitude TFR instructions/regulations apply, with the following restrictions:

3.12.2.1. Range 1. No low altitude TFR pattern on Range 1, because of proximity to Ajo and Ajo airport.

3.12.2.2. Range 2. No low altitude TFR pattern on Range 2, if Range 1 nuclear pattern is hot.

3.12.2.3. Range 3. No low altitude TFR pattern on Range 3, if Range 2 right traffic nuclear or pop pattern is hot.

3.12.2.4. Range 4. No low altitude TFR downwinds on Range 4 when Range 2 is doing TMLT recoveries. When low altitude TFR downwinds are being performed simultaneously on Ranges 3 and 4, Range 4 finals will be restricted to 8 NM for pattern deconfliction.

3.13. Manned Range Entry, Clearance and Departure. Specific routing for range entry and exit are according to the applicable sections of this chapter.

3.13.1. Check-in. To enter a manned range, the flight lead must first contact Range Operations, UHF 272.1.

3.13.1.1. Flight Lead Check-in. The flight lead will check in with call sign, scheduled range and time. Casual users will add: unit, home/deployed base, number and type of aircraft.

★3.13.1.2. Range Clearance. Obtain clearance from Range operations on UHF 272.1 prior to entering a range. Range Ops will advise flights of altimeter setting, Gila Bend AFAF active runway, restrictions pertinent to that range(s), and the current status of the range (i.e. hot with “_____” flight, cold, dry only, flights above XXX’ AGL only, closed) as well as cautions concerning ground activity on that or adjacent ranges. If a flight is already on the range, Range Ops will pass that flight’s callsign (“Range 2 is showing hot with Thud flight”). Ordinarily, if ground personnel other than a GFAC are on the range, missions will be dry only and normally limited to **500’ AGL**. When EOD personnel are conducting operations on the range, overflight will be restricted to 3,000’ AGL (**10,000’ AGL if detonations are scheduled**). Range NOTAMS will specify exact overflight altitudes.

3.13.2. Final Clearance. Final clearance onto the range is given by the appropriate RCO. Proceed no further than the range holding point until cleared on range. If no contact is made with the RCO, return to Range Operations frequency for assistance/instructions.

3.13.2.1. Training Events. Flight leads will provide the following information before performing any events on the range: call sign, type events (to include planned delivery dive angle), events using TMLT recoveries and any combat LASER events.

3.13.3. Pre-brief. These items can be pre-briefed via FAX or by telephone (see Figure 3.18). See specific range paragraph for phone numbers.

3.13.4. Range Entry. The ranges may be entered from IFR fixes NOLLS or BUGGS. MTRs and other VFR entries may also be used. LATN entries only apply to A-10s and helicopters. The ranges may be entered with a spacer pass or a hot First Run Attack (FRA). If the **General Aviation/Air Evacuation** corridor is hot, maintain a minimum of 1,500’ AGL, if entering from the east, until west of Highway 85.

3.13.5. Short Notice. Clearance to use a manned range when not previously scheduled (i.e., “bootlegging”), or diversions to another range may be coordinated directly with the appropriate

RCO. If the bootleg time is feasible, the RCO will notify Range Operations, who will advise Range Scheduling.

★3.13.6. Range Exit. Exit after accomplishing an armament safety check. Check out with Range Operations and pass an Expenditure Report IAW Figure 2.4 (**expenditure report not applicable to Luke AFB-based aircraft**). RCOs will accomplish the check-out on Class A range. Contact ABQ for an IFR clearance prior to departing restricted airspace (IAW Letter of Agreement), UNLESS proceeding to GBAFAF for patterns/landing. Specific exit routing is according to individual range procedures in this chapter.

3.14. Range 1. (Figure 3.13)

3.14.1. General. Target, reference points, and radar reflector coordinates are in Figure 3.12.

3.14.2. Range 1 Communications.

- UHF Primary 298.6, Secondary 335.9
- DSN 896-5251, FAX extension -5100
- At the entry-point phone, dial 251
- Radio Call. "Range One"

3.14.3. Range 1 Attack Headings.

- Conventional, 261 or 081 magnetic
- Nuclear, 258 magnetic

3.14.4. Emergency Airfield. Gila Bend AFAF; heading 014/ 24 NM.

3.14.5. Range 1 Primary Holding. Primary holding is at Cimarron Peak at 9,000'; hold east, left turns, inbound heading 270 magnetic.

3.14.5.1. Range 1 Alternate Holding. With clearance from the RCO/flight lead, holding may be accomplished over the range. RCO and flight leads will ensure a deconfliction plan is established between arriving and departing flights.

3.14.6. Range 1 Entries. Do not transit the SELLS LOW or SELLS MOA unless scheduled. Also, LATN entries only apply to A-10s and helicopters.

3.14.6.1. BUGGS Entry. From BUGGS proceed south to Cimarron Peak, arriving there at the holding altitude of 9,000'. Proceed with Cimarron Entry. Avoid R-2304/ETAC and SELLS A if Hot.

★3.14.6.2. Cimarron Entry. Depart Cimarron Peak heading approximately 268 until intercepting the extended run-in line. Maintain 9,000' until clear of holding; maintain 8,500' until abeam Batamote Mountain (**14 NM from Nuc circle**), then climb or descend as required.

3.14.6.3. Low level/ MTR/ LATN Entry. Flights should not fly within 10 NM southeast or 15 NM east of Range 1 until deconfliction with the using flight is assured. Remain below 5,000' since most eastbound traffic departs above 5,500'.

3.14.6.4. West Entry. May be accomplished by transiting NTAC or STAC. Coordination before takeoff is highly recommended. Loft/standoff deliveries are not authorized from the west.

3.14.7. Range 1 Patterns. The conventional pattern uses an attack heading of 261 degrees magnetic. The RCO will clear flights for this pattern using the terminology "cleared right range, left traffic" or "cleared left range, right traffic."

3.14.7.1. Range 1 West to East Attacks. An easterly attack heading of 081 degrees magnetic may be flown in the box pattern only.

3.14.7.2. Range 1 Pop-up Pattern. Avoid overflying the Ajo Airport and the Childs Ranch south of Batamote Mountain below 4,000'. Do not extend the right traffic pop pattern north of AUX 8 **(5.7 NM Northeast of Range 1 Right Conventional target)** to avoid conflicts with Range 2 traffic. Range 1 and Range 2 F-16s must use the same direction of traffic for POPs and HARBs. Release systems will be safed immediately when rolling out on downwind and will not be re-armed until within the Range 1 restricted area boundary.

3.14.7.3. Range 1 NWD Pattern. Left traffic only, east to west run-ins. Remain within 15 NM. Downwind altitude is normally 5,500'.

3.14.7.4. Range 1 LANTIRN Pattern. Same as NWD above. Low altitude TFR downwind not permitted due to Ajo and its airport.

3.14.8. Range 1 Hazards and Conflicts.

3.14.8.1. Cimarron Peak. When holding at Cimarron Peak, other traffic may be in the same pattern, at different altitudes.

3.14.8.2. NWD Downwind. The NWD downwind is outside the R-2305 boundary. Release systems will be safed immediately when rolling out on downwind and will not be re-armed until **on final and in restricted airspace**. Avoid the Ajo airport and Childs Ranch below 4000'.

3.14.8.3. POP Pattern. The POP Pattern extends outside the restricted area R-2305 to the south. Release systems will be safed prior to exiting restricted airspace and will not be re-armed until inside R-2305 **(approximately 6NM from the Left Conventional Target)**.

3.14.8.4. NWD Pattern/Ranges 1 and 2. The NWD patterns for Ranges 1 and 2 converge approximately 16 NM east of the NUC targets. From Range 1 base turn position, it is easy to mis-identify the Range 2 run-in line as Range 1's. Cross reference final heading and ground references at the 45 IP.

3.14.8.5. Range 1 Range Munitions Consolidation Point. The Range Munitions Consolidation Point (RMCP) for Range 1/NTAC/STAC is located 7.5 NM due west of the right conventional

target and 1 NM east of the STAC border, by the water well area (N32 32.170' W113 05.030'). Do not point at or overfly the RMCP. Aircraft experiencing a runaway gun should attempt a right turn out of traffic ASAP, due to the possibility of personnel at the water well.

3.14.9. Range 1 Exits.

3.14.9.1. Northerly Departures. Northerly departures make a left climbing turn to 11-16,000'. Proceed direct EMBAR, then to Black Gap, then direct GBN. Contact Ranges 2, and 3 for overflight, if necessary. (Range 1 RCO may be able to assist, with appropriate lead time).

3.14.9.2. Easterly Departures. Easterly departures should proceed north of Ajo on a southeasterly heading at 5,500' through 9,500'. For night operations climb to 5,500' before departing the range. Avoid overflight of Ajo Airport and the town of Ajo below 4000'. Avoid the Cimarron Peak holding area.

3.15. Range 2. (Figure 3.14)

3.15.1. General. Target, reference points, and radar reflector coordinates are in Figure 3.12.

3.15.2. Range 2 Communications.

- UHF Primary 303.1, Secondary 335.9.
- DSN 896-5252, FAX extension -5152.
- At the entry-point phone, dial 252.
- Radio Call. "Range Two."

3.15.3. Range 2 Attack Headings.

- Conventional, 279 or 099 magnetic.
- Nuclear, 279 magnetic.

3.15.4. Emergency Airfield. Gila Bend AFAF; heading 017/16 NM.

3.15.5. Range 2 Holding. Primary holding is at Cimarron Peak at 8,000'; hold east, left turns, inbound heading 270 magnetic.

3.15.5.1. Range 2 Hold Deconfliction. With clearance from the RCO/flight lead, holding may be accomplished over the range. RCO and flight leads will ensure a deconfliction plan is established between arriving and departing flights.

3.15.6. Range 2 Entries. Do not transit the SELLS LOW or SELLS MOA unless scheduled. Also, LATN entries apply only to A-10s and helicopters.

3.15.6.1. BUGGS Entry. From BUGGS proceed south to Cimarron Peak, arriving there at the holding altitude of 8,000'. Proceed with Cimarron Entry. Avoid R-2304/ETAC if Hot and SELLS A.

★3.15.6.2. Cimarron Entry. Depart Cimarron Peak direct to the 45 IP, heading approximately 286, until intercepting the extended run-in line. Maintain 8,000' until clear of holding; then maintain 8,500' until abeam Hat Mountain (**9NM from Range 2 Nuc target**), then climb or descend as required.

3.15.6.3. Range 2 Low level/ MTR/ LATN Entry. Flights should enter east of Coffeepot Mountain (**17.7 NM East of Range 1 Nuc Target**), unless deconflicted with Range 1. Remain below 5,000' since most eastbound traffic departs at 5,500'.

3.15.6.4. West Entry. May be accomplished by transiting NTAC or Range 4. Coordination before takeoff is highly advisable. Loft/standoff deliveries are not authorized from the west.

3.15.7. Range 2 Patterns. The conventional pattern normally uses an attack heading of 279 degrees magnetic. The RCO will clear flights for this pattern using the terminology "cleared right range, left traffic" or "cleared left range, right traffic."

3.15.7.1. Range 2 West to East Attacks. An easterly attack heading of 099 degrees magnetic may be flown, from a box pattern only.

3.15.7.2. Range 2 NWD Pattern. Left or right traffic may be flown. Downwind altitude is normally 5,500'. Left traffic will normally be flown except when Range 1 is using left range, right traffic for F-16 POPs; then the right hand NWD pattern will be flown. Unless coordination with Range 3/ ETAC is achieved, right traffic NWD is restricted to a 7 NM pattern. Remain within 12 NM on downwind and final. Right-hand patterns will not be flown if the LANTIRN pattern on Range 3 or 4 is in use. See Hazards/Conflicts below.

3.15.7.3. Range 2 LANTIRN Pattern. Same as NWD above. Low altitude TFR downwind not permitted when Range 1 NWD pattern is hot.

3.15.7.4. Range 2 HARB Pattern. When F-16 HARBs are being flown on Range 1 or 2, the adjacent range must use the same DIRECTION OF TURN if F-16s intend to perform HARBs on that range. This restriction only applies to Ranges 1 and 2, and only to "fast-movers".

3.15.8. Range 2 Hazards/Conflicts.

3.15.8.1. Cimarron Peak. When holding at Cimarron Peak, other traffic may be in the same pattern at different altitudes.

3.15.8.2. Ajo-Gila Bend Highway. Several patterns cross the Ajo-Gila Bend highway and railroad. Special care must be taken to avoid weapons releases in this area.

3.15.8.3. Range 1 NWD Pattern. The NWD patterns for Ranges 1 and 2 converge approximately 16 NM East of the NUC targets. The pattern must not be wide enough to conflict with Range 1 nuclear pattern.

★3.15.8.5. TMLT Recoveries. When TMLT recoveries are conducted on the right range, the RCO will contact the Range 4 RCO. Low altitude TFR downwinds on Range 4 will be suspended. **Early climbs after TMLT's may conflict with Range 4 NWD patterns.** TMLTs may be restricted until coordination is complete.

3.15.8.6. Range 3 Traffic. Traffic between Cimarron Peak and Range 3 may transit SW of ETAC, within 2 NM of the nuclear final on Range 2. When using the right nuclear pattern beyond 7 NM, be especially alert between the base and final positions for traffic entering/ exiting Range 3 or 4.

3.15.8.7. Range 2 Range Munitions Consolidation Point (RCMP). The (RCMP) for Range 2 is located on the AUX 9 runway (N32 39.490' W112 52.270'). Do not point at or overfly the RCMP when occupied.

3.15.9. Range 2 Exits.

3.15.9.1. Northerly Departures. Northerly departures make a left climbing turn to 11-16,000', proceed direct Black Gap, then direct GBN; coordinate transit with Range 3, if necessary.

3.15.9.2. Easterly Departures. Easterly departures should fly between the nuclear run-in line and AUX 8 (**3.2 NM SSE of Range 2 Nuc Target**) heading approximately 110, at 5,500'. Use caution for range entries below 5,000' or 6,500' and above. Avoid the Cimarron Peak holding area. Monitor Range Operations until clear of R-2304/5.

3.16. Range 3. (Figure 3.15)

3.16.1. General. Target, reference points, and radar reflector coordinates are in Figure 3.12. Range 3 and ETAC may be used simultaneously by two different flights. See paragraph 3.16.10. for Range 3/ETAC joint-use procedures.

3.16.2. Range 3 Communications.

- UHF Primary 311.3, Secondary 335.9.
- DSN 896-5253, FAX extension -5153.
- At the entry -point phone, dial 253.
- Radio Call. "Range Three:"

3.16.3. Range 3 Attack Headings.

- Conventional, 297 or 117 magnetic.
- Nuclear, 295 magnetic.

3.16.4. Emergency Airfield. Gila Bend AFAF; heading 345 for 7.5 NM.

3.16.5. Range 3 Primary Holding. Primary holding is at Cimarron Peak at 6,000'; hold east, left turns, inbound heading 270 magnetic.

3.16.5.1. Range 3 Alternate Holding. With clearance from the RCO/flight lead, holding may be accomplished over the range. RCO and flight leads will ensure a deconfliction plan is established between arriving and departing flights. Be aware that ETAC and Range 3 may both be hot with different flights on different frequencies. See the joint use procedures in paragraph 3.16.10.

3.16.6. Range 3 Entries. Do not transit the SELLS MOA unless scheduled. Also, the LATN area is for A-10s and helicopters only. Entries are dependent on the status of ETAC.

3.16.6.1. ETAC Hot. When ETAC is hot, F-16s should hold at Cimarron Peak until ETAC is cold (unless ETAC traffic is helicopters scheduled for joint-use.)

3.16.6.2. BUGGS Entry. Proceed from BUGGS to Cimarron Peak at 6,000'. Execute the Cimarron Entry. If ETAC is cold, proceed direct to Range 3.

3.16.6.3.2. Range 3 Joint Use. From Cimarron Peak, proceed direct to Hat Mountain (heading 290), then direct to Range 3. Maintain 6,500' until deconflicted with departing traffic and past Hat Mountain (8NM south of Range 3 Nuc target).

3.16.6.4. Low Level/ MTR/ LATN Entry (below 6,000'). (LATN entries only apply to A-10s and helicopters.) If ETAC is cold, entry may be made from any direction on an arc from GBFAF clockwise to Cimarron Peak; if Ranges 1 and 2 traffic are not a factor, entry made be made from as far southwest as Ajo. Remain below 5,000' to avoid traffic departing Ranges 1, 2, 3, and ETAC.

3.16.6.5. West Entry. Low altitude entries may be made from the west by overflying Range 4, or by entering north of the White Hills (north of Black Gap). Coordination before takeoff is highly recommended. Loft/standoff deliveries are not authorized from the west.

★3.16.7. Range 3 Patterns. The conventional pattern uses an attack heading of 297 degrees magnetic. The RCO will clear flights for this pattern using the terminology "cleared right range, left traffic " or "cleared left range, right traffic." Left Range, Right Traffic for POPs is prohibited during F-16 joint-use with helicopters. **Note: Fast movers NWD and Pop-up patterns go into ETAC airspace.**

3.16.7.1. Range 3 West to East Attacks. An easterly attack heading of 117 degrees magnetic may be flown, in the box pattern only.

3.16.7.2. Range 3 Pop-up Pattern. Normally right range, left traffic. If Range 2 is hot using the right hand NWD pattern, remain north of Hat Mountain.

3.16.7.3. Range 3 NWD Pattern. Left or right traffic may be flown. Left traffic will normally be flown. Range 2's right traffic NWD pattern is restricted to a 7 NM pattern unless coordination with Range 3/ETAC is achieved. In this case, Range 3 may use the right traffic NWD pattern, unless helicopters are operating on ETAC. Downwind altitude is 5,500'. Remain within 15 NM (within 14 NM when WAATS is operating on ETAC).

★3.16.7.3.1. ETAC Closed/With EOD. If ETAC is closed for EOD operations, do not overfly ETAC (east of the double-bladed line at the 20 IP) below **3,000' AGL on non-detonation days and 10,000' AGL when detonations are scheduled.**

3.16.7.4. Range 3 LANTIRN Pattern. Same as NWD above. Left traffic only.

3.16.8. Range 3 Hazards/Conflicts.

3.16.8.1. High Terrain. High terrain south of the range.

3.16.8.2. Black Gap Recovery. Use caution for traffic exiting the restricted airspace via Black Gap. (5 miles west of Range 3).

3.16.8.3. Range 3/ETAC Deconfliction. ETAC and Range 3 may be used simultaneously by two separate flights. (See paragraph 3.16.10., joint use procedures.) Flight leads must confirm the status of ETAC for their entire range period prior to mission briefing and range entry. If Range Operations advises ETAC is hot, and no contact is made on 311.3 or 305.6, recheck with Range Operations and/or the Range 3 RCO before entering ETAC airspace.

3.16.8.4. Emergency Aircraft. Aircraft with emergencies requiring a straight-in approach to Gila Bend Runway 35 may fly within 2 miles west of Range 3. Emergency aircraft enroute to Gila Bend will transmit on Guard their flight path, altitude, and distance/time from GBAFAF. Flights on Range 3 will orbit at or above 8,000' or as necessary to deconflict with emergency aircraft. If weather prevents the above procedures, the flight will depart the range to the northeast and orbit over ETAC in VMC coordinating with flight in progress on 305.6.

3.16.8.5. Cimarron Peak Holding/Entries. When holding at Cimarron Peak, other traffic may be holding in the same pattern, at different altitudes. Entries from Cimarron Peak can conflict with Range 2 nuclear pattern traffic out to 12 NM, and up to 8,000'.

3.16.8.6. Range 2 NWD Pattern. Pop-up patterns for right range, left traffic, are to remain northeast of Hat Mountain (GBN 180/20) to deconflict with Range 2's NWD run-in.

3.16.8.7. Class D Airspace. The north corner of Range 3 lies adjacent to the Gila Bend AFAF Class D airspace.

3.16.8.8. Range 3 Range Munitions Consolidation Point (RMCP). The RMCP for Range 3/ETAC is located north of the range road, near the southwest end of the double-bladed ETAC boundary at 12SUB439203. Do not drop on this point.

★3.16.9. Range 3 Exits. Ensure you check out with Range Operations. Remain within **restricted airspace** until in contact with ABQ Center.

3.16.9.1. Northerly Departures. Northerly departures make a left climbing turn to 11-16,000', direct GBN.

3.16.9.2. ETAC Cold/Easterly or Night Departures. With ETAC cold, east or night departures should climb to 5,500'- 9,500'.

3.16.9.3. ETAC Hot/ VFR to the South. Proceed to Hat Mountain (GBN 180/20) at 9,500', then turn towards Cimarron Peak (GBN 142/34), heading 120 magnetic. Fly east or south to exit the restricted area, avoiding Cimarron Peak holding.

3.16.9.4. IFR. Remain within R-2304/5 until contact with ABQ Center, then via stereo routing or as assigned by ATC.

3.16.9.5. Alternate Exit. From Range 3, fly a northeasterly heading until clear of the ETAC, altitude as desired, below 6,500' to avoid the Victor route. Remain 5 NM away from Gila Bend AFAP unless cleared by tower.

3.16.10. Joint-Use of Range 3 and ETAC. Joint-use is defined as two separate flights using Range 3 and ETAC simultaneously. Range Operations will advise flights entering ETAC and Range 3 when the adjacent range is/will become hot with joint-use. See Figure 3.16.

3.16.10.1. Joint-Use Authorization. Joint-use is only authorized during Day operations by 56FW, 162 FW, 355 WG, 355WG-sponsored A/OA-10s, and WAATS/ 285 AHB helicopters. Joint-use will only be scheduled inflight when both ETAC and Range 3 flights are A-10 and/ or WAATS/ 285 AHB aircraft, or when A-10s are controlling "fast movers" on ETAC and A-10s/ helicopters are requesting Range 3. When F-16s are on Range 3, only WAATS/ 285 AHB helicopters may be scheduled on ETAC; bootleg on ETAC is not authorized. Range 3 may be used by "slow-movers" when F-16s are using ETAC, unless F-16s have scheduled Range 3 airspace.

When ETAC is hot with:	F-16	A-10	Helos;
Range 3 may have:	A-10	A-10	A-10;
or	Helos	Helos	Helos
or			F-16s*

*No bootleg on Range 3 with F-16 on ETAC, unless the F-16s are under A/OA-10 FAC control.

When Range 3 is hot with:	F-16*	A-10	Helos:
ETAC may have:	Helos	Helos	Helos
or		A-10	A-10
or	F-16	F-16	

*No bootleg on ETAC with F-16 on Range 3.

3.16.10.2. Joint-Use Indication. Joint-use will be indicated on the BMGR schedule with "XXX" or "****". XXXs in ETAC or Range 3 indicate that joint-use may be authorized (depending on type aircraft). ****s in ETAC indicate that ETAC may be scheduled only with helicopters. When F-16s require both ETAC and Range 3 airspace, (for example: Low Altitude Step-Down Training (LASDT) missions), the unit number will be in the ETAC column, with "LASDT" in the Range 3 column.

3.16.10.3. 355WG/355WG-sponsored OA/A-10 procedures. Airborne Forward Air Controllers (AFACs) may work fighters, to include “fast-movers” IAW the following:

3.16.10.3.1. Briefing. The AFAC and fighters have been briefed on joint-use procedures.

3.16.10.3.2. Range 3. When A/OA-10s or WAATS/1-285 AHB helicopters use Range 3 simultaneously, they must operate under joint-use guidelines. The AFAC must inform the Range 3 RCO when he is controlling “fast-movers”.

3.16.10.4. WAATS/285 AHB Helicopter procedures. WAATS/285 AHB operations on ETAC may be conducted IAW the following restrictions when joint use is in effect:

3.16.10.4.1. Vertical Limits. Adhere to a maximum flight altitude of 1,500’ AGL.

3.16.10.4.2. Joint-Use Operations Area. (Figure 3.16) All operations will be conducted north and east of the ETAC maintenance road from N32 45.000’ W112 37.000’ to N32 41.900’ W112 33.100’ (Target 313/W Artillery), to N32 40.900’ W112 31.700’ (Target 320/Armored Column), north of maintenance road to W112 29.000’, and east of W112 29.000’. During joint use operations with F-16s, the authorized firing heading (range fan) for all targets within the impact area will be 360 degrees magnetic to 135 degrees magnetic.

3.16.10.5. Joint-Use Range 3 Procedures. The following procedures are different when joint-use is in effect.

3.16.10.5.1. Cimarron Peak Entry. Either entry may be used, however ensure helicopters are operating in joint-use areas before entering ETAC airspace.

3.16.10.5.2. Joint-Use Patterns. The 4NM radius circle does not extend into ETAC UNLESS helicopters are operating on ETAC. The nuclear pattern is restricted to 10 NM base (14 NM in the turn) when helicopters are on ETAC (See Fig 3.16). Range 3 F-16s are restricted to left traffic for POPs and nuclear pattern.

3.16.10.5.3. Joint-Use Hazards/Conflicts.

★3.16.10.5.3.1. Range 3. All flights on Range 3 will remain west of the double-bladed line (through the 20 IP), unless in the nuclear **or** pop patterns.

3.16.10.5.3.2. ETAC. ETAC flights will remain east of the range boundary, the double-bladed line which runs from Tank Butte and the RMCP then north to the range boundary. (See Fig 4.13) Also, remain northeast of a line from Black Butte through NATO Hill. Do not strafe the West Tank Group (Target 309) on attack headings from 210-330 degrees. Assume Range 3 is hot and avoid its airspace unless specifically scheduled to use both ranges. Finally, during aircraft emergencies, if possible, avoid Range 3 enroute to GBAFAF. Advise Range 3 on 311.3 or GUARD if flight will penetrate Range 3.

3.16.10.5.4. Joint-Use Exits. SE Departures should climb to 9,500’ before departing the range.

3.16.10.6. Joint-Use ETAC Procedures. The following procedures are different when joint-use is in effect:

3.16.10.6.1. West Entry. Do not enter ETAC from the west.

3.16.10.6.2. Joint-Use Exits. Do not penetrate the southwest part of ETAC described above.

3.16.10.6.3. Joint-Use Radio Procedures. The flight will check in and out on Range 3 UHF 311.3 before entering and departing ETAC, using UHF 305.6 for ETAC operations. The Range 3 RCO will monitor 305.6 via the backup radio during joint-use procedures.

3.17. Range 4. (Figure 3.17)

3.17.1. General. Target, reference points, and radar reflector coordinates are in Figure 3.12.

3.17.2. Range 4 Communications.

- UHF Primary 308.7, Secondary 335.9.
- DSN 896-5254, FAX ext. 5157.
- At the entry -point phone, dial 254.
- Radio Call. "Range Four".

3.17.3. Range 4 Attack Headings.

- Conventional, 259 or 079 magnetic.
- Nuclear, 250 magnetic.

3.17.4. Emergency Airfield. Gila Bend AFAF; heading 056 and 20 NM.

★3.17.5. Range 4 Primary Holding. Primary holding is west of Range 4 **from 11,000' to 14,000' or surface to 5,000'**. Hold within the restricted area, north of NTAC, 5-10 NM west of Range 4.

3.17.5.1. Range 4 Alternate Holding. Coordinate holding over the range with the RCO/flight lead. The RCO and flight leads will ensure a deconfliction plan is established between arriving and departing flights. Do not descend without RCO clearance.

3.17.5.2. Cimarron Peak. Do not hold at Cimarron Peak unless an altitude is pre-coordinated.

3.17.6. Entries. Casual Users may not use the Cimarron Holding or Entry for Range 4.

3.17.6.1. NOLLS Entry. Cross NOLLS at the assigned IFR altitude (usually 9,000') and proceed direct to Range 4.

3.17.6.2. Low Level/ MTR entry (from the west or north, only). After completing a low level/ MTR, remain at or below 5,000' and proceed to Range 4. Entry may be to a hot first run attack (FRA) on any scoreable bomb target. Loft/ standoff deliveries from the west are not authorized.

★3.17.6.3. Cimarron Peak Entry. Entries may be made from the east by flying north of Range 2 at 8,500'. If Range 2 is hot, proceed direct to Hat Mountain (GBN 180/20--**Heading 290 degrees**), then north of AUX 10, then direct to Range 4. Climb only when within 5 NM of Range 4, due to NTAC entries at 9,000' and departures at 9,500'. Descent out of 8,500' may be accomplished when past AUX 10 (**12.5 NM from Range 4 Nuc target**).

3.17.6.4. A-10 LATN Entry. Proceed north of ETAC to the LATN entry point and contact Range Operations. Contact GBN Tower for traffic advisories and permission to transit their airspace. Fly south of GBAFAF, then between the White Hills and Luke AUX 11, and then to Range 4. Remain below 3,000' AGL until on Range 4.

3.17.6.4.1. Range 4 Hot. If Range 4 is hot, hold between Luke AUX 11 and AUX 6 (6 NM northeast of AUX 11) at or below 3,500'. Remain above 1,800' until clear of Highway 85.

★3.17.6.5. **High Altitude Range Entry. Contact Gila Bend Tower if transiting tower airspace and avoid any traffic, including SFO pattern. Contact Range Operations prior to penetrating Restricted airspace. Once cleared and inside Restricted airspace, begin climb while monitoring UHF Range Ops frequency (272.1) but remain outside Range 4 airspace until in contact with Range 4 RCO. Climb VFR to planned working altitude (no higher than the top of assigned airspace). Enter Range 4 airspace when cleared.**

3.17.7. Range 4 Patterns.

3.17.7.1. Range 4 Conventional Pattern. The conventional pattern uses an attack heading of 259 degrees magnetic.

3.17.7.2. Range 4 West to East Attacks. An easterly attack heading of 079 degrees magnetic may be flown, in the box pattern only.

3.17.7.3. Range 4 Pop-up Pattern. For fast-movers, right range, left traffic only; A/OA-10's may fly pop-ups using either range/traffic.

3.17.7.4. Range 4 NWD Pattern. Left traffic only. Downwind altitude 5,500' (weather permitting). Caution must be exercised to avoid NTAC Range airspace and Range 2 airspace. Patterns will be flown so as to remain 1 NM west of Ajo Highway during the base turn. This will provide a 10-12 NM final, dependent on downwind spacing. If Range 2 is using left range/right traffic, start the base turn no further east than abeam the 45 IP.

3.17.7.4.1. Range 4 Night Missions. Remain within 12 NM and descend once established on final to no lower than altitude specified in applicable regulations.

3.17.7.5. Range 4 LANTIRN Pattern. Same as NWD above. Low Altitude TFR downwinds are restricted until coordination with Range 2 is achieved, and is not authorized if Range 2 is conducting TMLTs on the right range.

3.17.7.5.1. Daytime. No low altitude TFR downwinds permitted when Range 2 is doing TMLT recoveries on the right range/left traffic, or using left range/ right traffic.

3.17.7.5.2. Night. No low altitude TFR downwind unless Range 2 is cold.

3.17.8. Range 4 Hazards/Conflicts.

3.17.8.1. R-2301E Boundary. R-2301E boundary is approximately one mile north of the right conventional target. When using left range, right traffic, use caution to avoid a wide downwind position.

3.17.8.2. Ranges 1/2/NTAC/STAC. Ranges 1/2/NTAC/STAC traffic proceed to Black Gap (GBN 198/14) from the south and west. Recovery altitudes are 9,500'-15,500'. Conflicts can occur if wide patterns or rejoins are made to the SW.

3.17.8.3. NWD Pattern. The NWD downwind and the pop-up pattern, if flown too loosely, can infringe on Range 2 airspace. Remain at least 5 NM west of Range 2, if it is hot. If Range 2 is using left range/ right traffic , the Range 2 RCO will advise Range 4 RCO, and nuclear/ LANTIRN patterns will be restricted to 7 NM finals.

3.17.8.4. TMLT Recoveries. No low altitude TFR downwinds when Range 2 is conducting TMLT recoveries. The RCO will contact Range 2 to ensure there is no conflict.

3.17.8.5. EOD Range. The EOD range is located approximately 2 NM west of Black Gap, at N32 45.311 W112 52.081 (GBN 205/16). Aircraft in the Range 4 nuclear downwind will have it on their nose just short of Black Gap. Pilots must not descend early from downwind altitude. When the EOD Range is hot, avoid it by 1 NM. Range Ops will notify all ranges and users upon check-in when the EOD Range is hot.

3.17.8.6. Range 4 Range Munitions Consolidation Point (RMCP). The RMCP is located on the AUX 11 runway at N32 48.480' W112 54.510'. Do not point at or overfly this point.

3.17.9. Range 4 Exits.

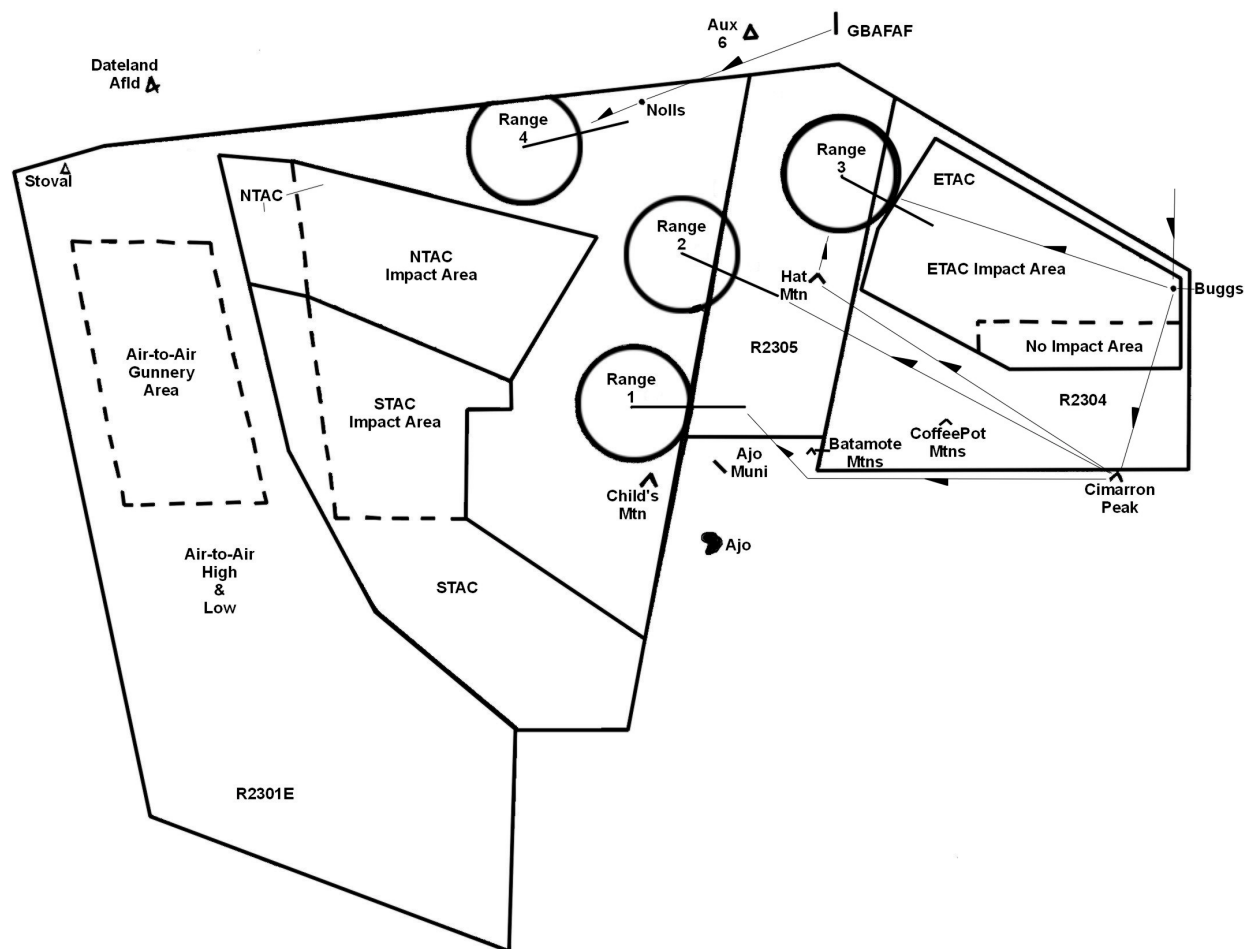
3.17.9.1. Medium Altitude. Medium altitude departures make a left climbing turn to 11-16,000', proceeding to Black Gap, or, as cleared, direct GBN (Ch 113) or COPPA (GBN 351/13).

3.17.9.2. A-10 LATN Departure. Obtain clearance from GBFAF tower to transit through their area. Fly north of Luke AUX 11, to the GBN 180/5, then into the LATN area north of the ETAC. Remain at or below 5,500' until into the LATN area.

3.17.9.3. AUX 10. Flights may depart at 9,500' via AUX 10 and Hat Mountain (GBN 180/20), to the south of ETAC, avoiding Cimarron Peak holding area.

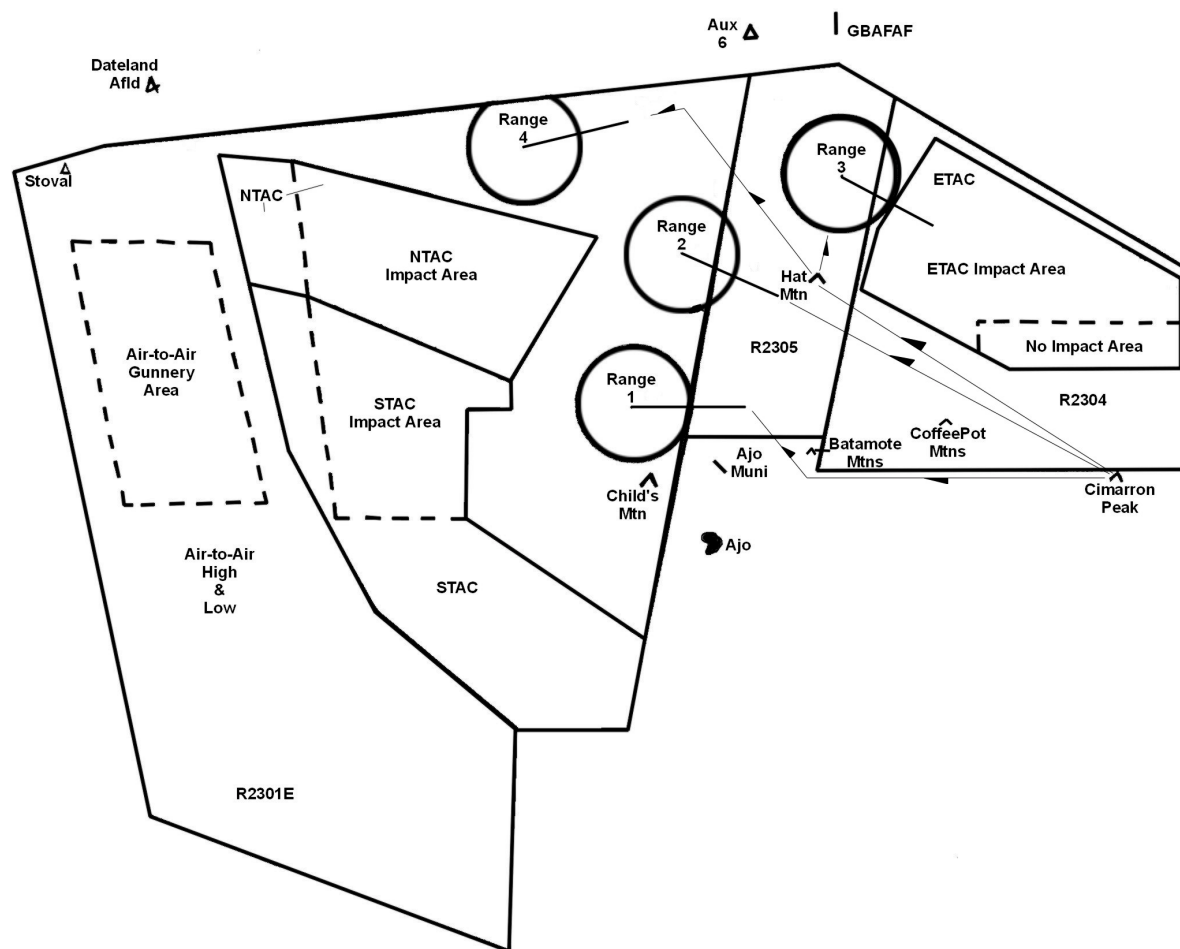
★Figure 3.1

MANNED RANGES IFR ENTRIES



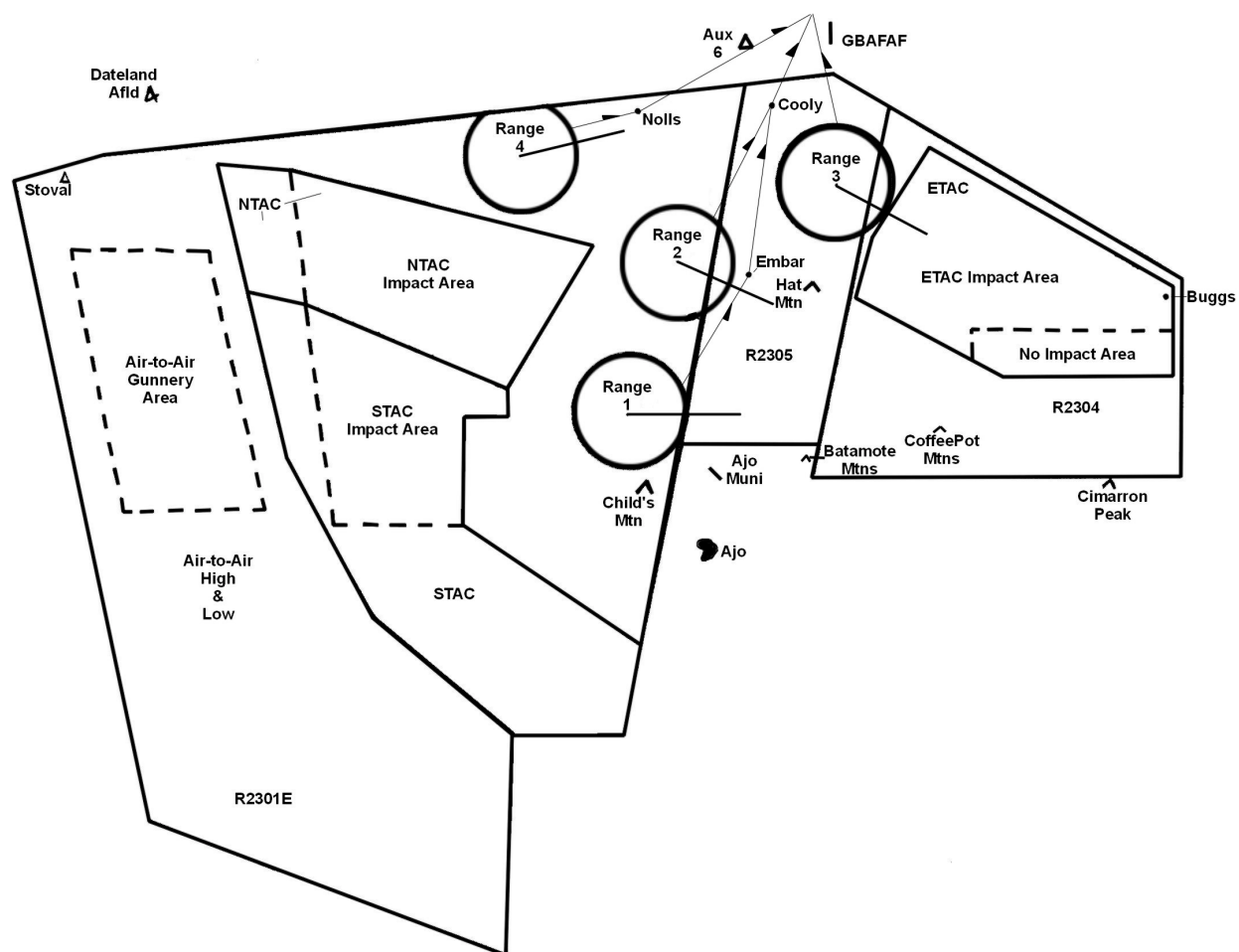
★Figure 3.2

MANNED RANGES LATN ENTRIES



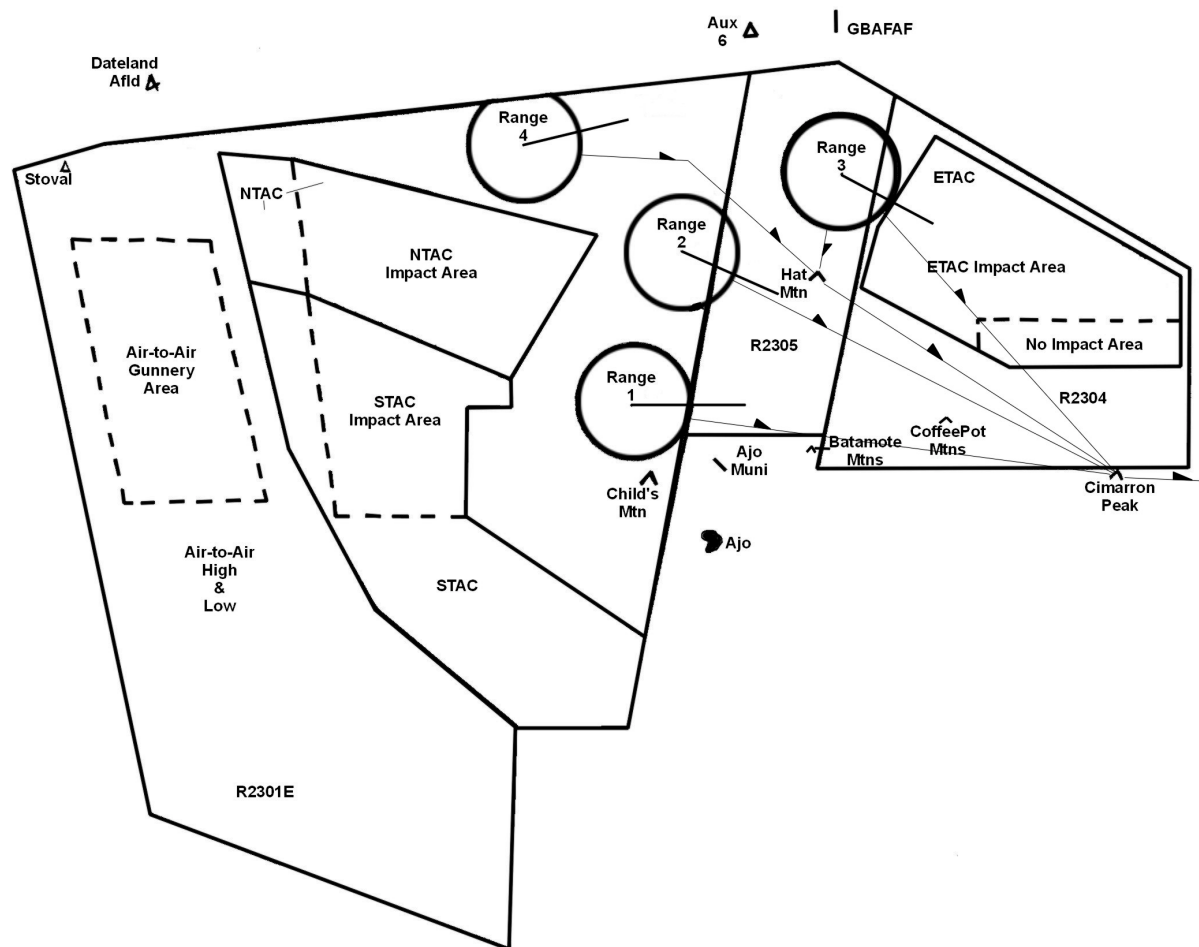
★Figure 3.3

MANNED RANGE IFR EXITS



★Figure 3.4

MANNED RANGE LATN EXITS



★Figure 3.5

TYPICAL MANNED RANGE LAYOUT

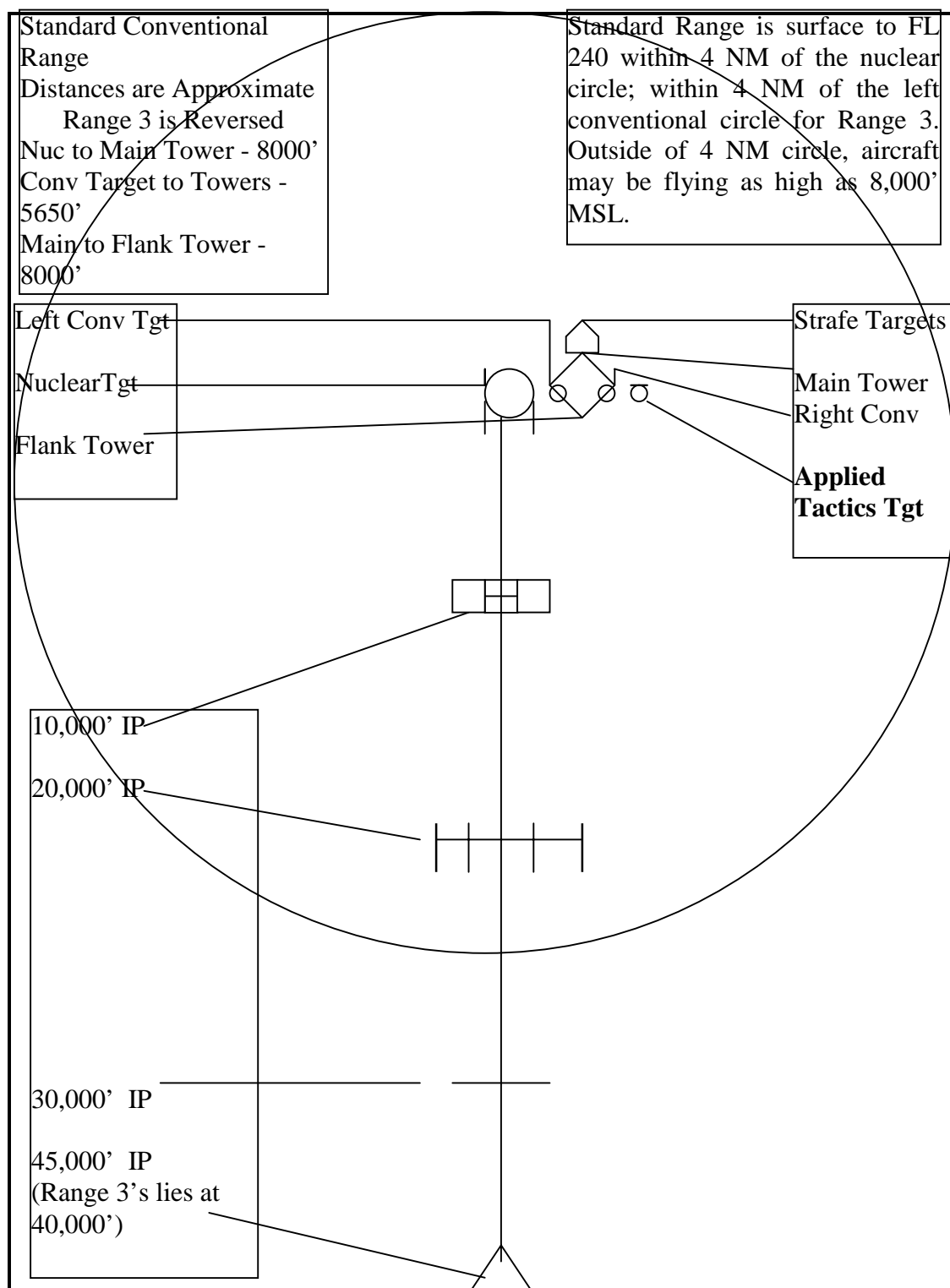


Figure 3.6

CONVENTIONAL TARGET LAYOUT

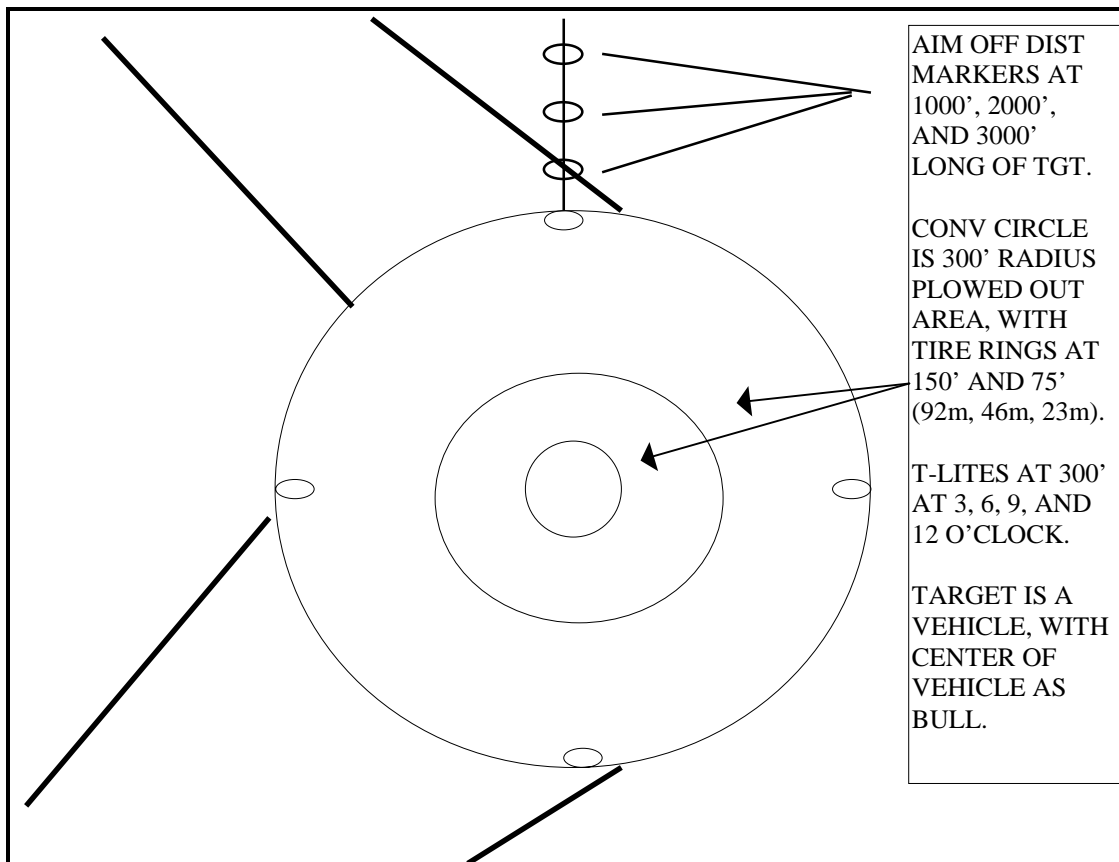
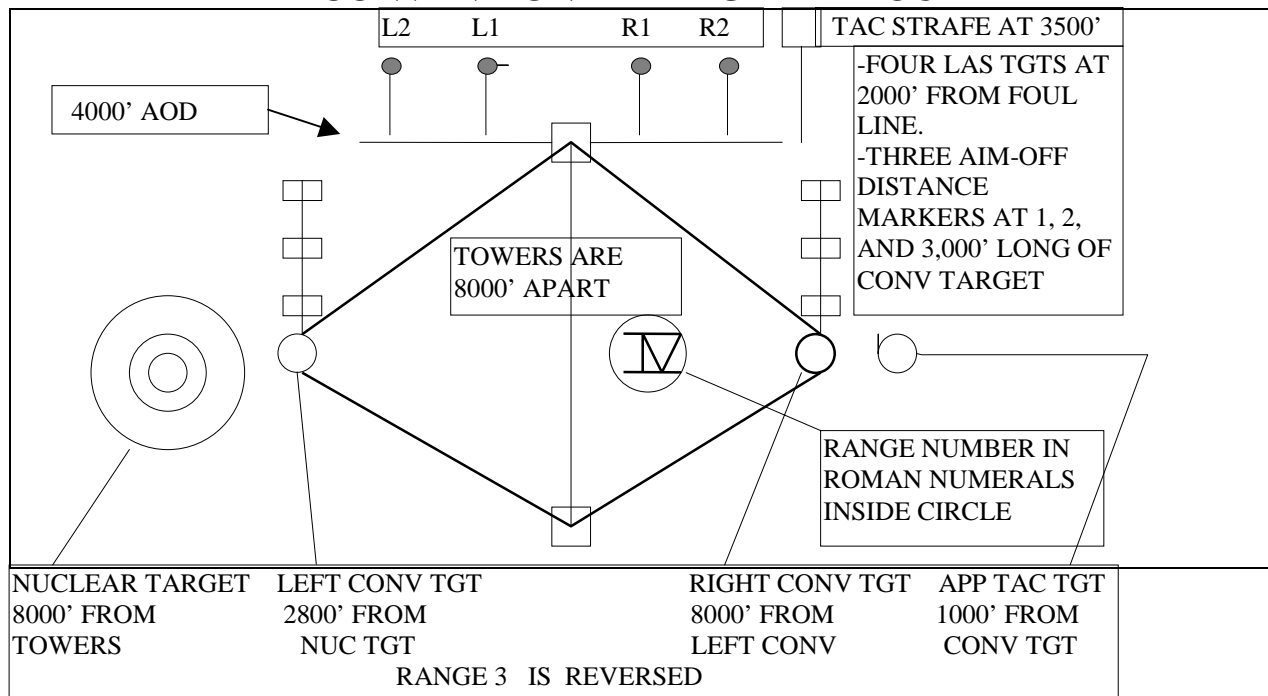


Figure 3.7

NUCLEAR TARGET LAYOUT, TYPICAL

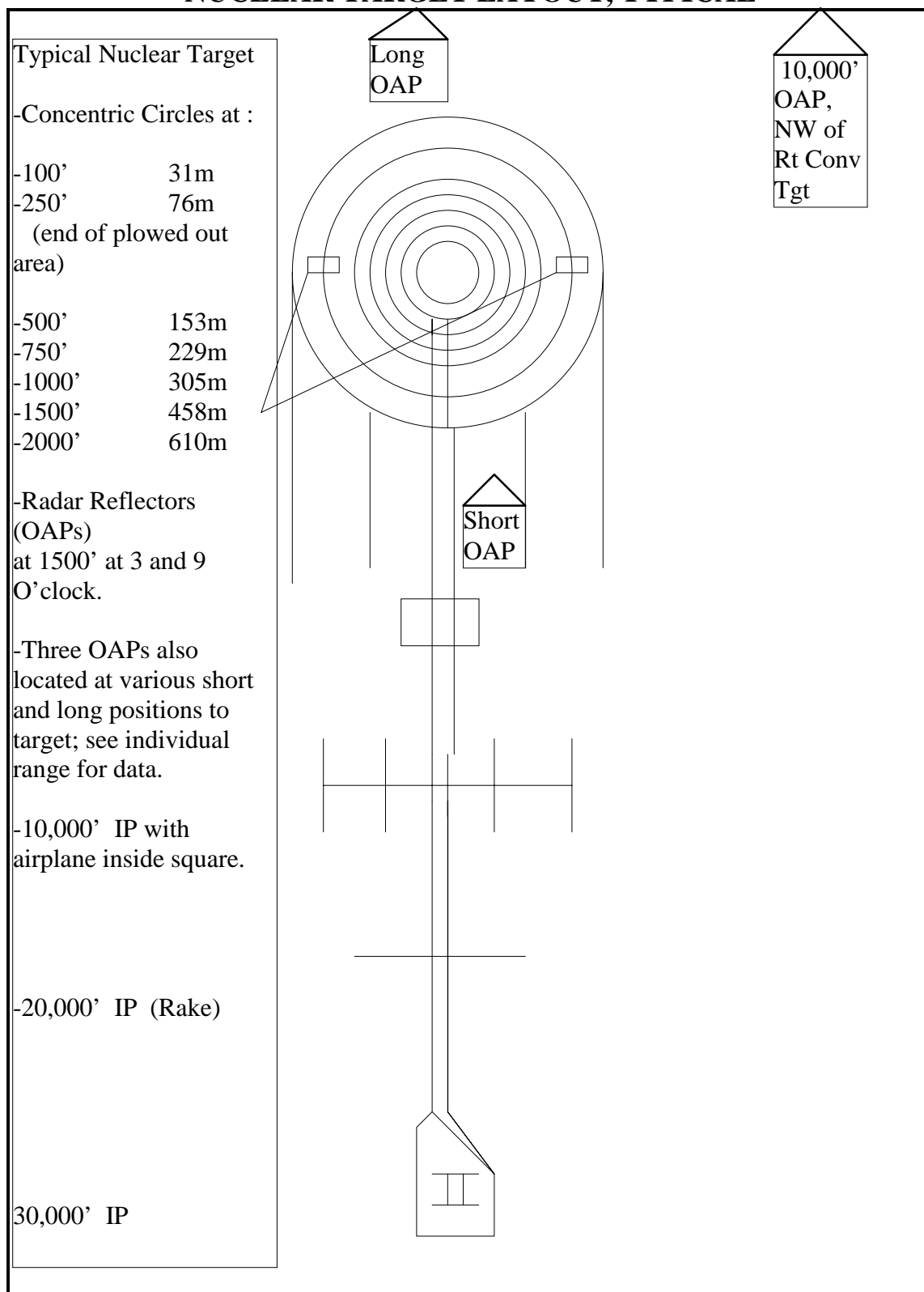
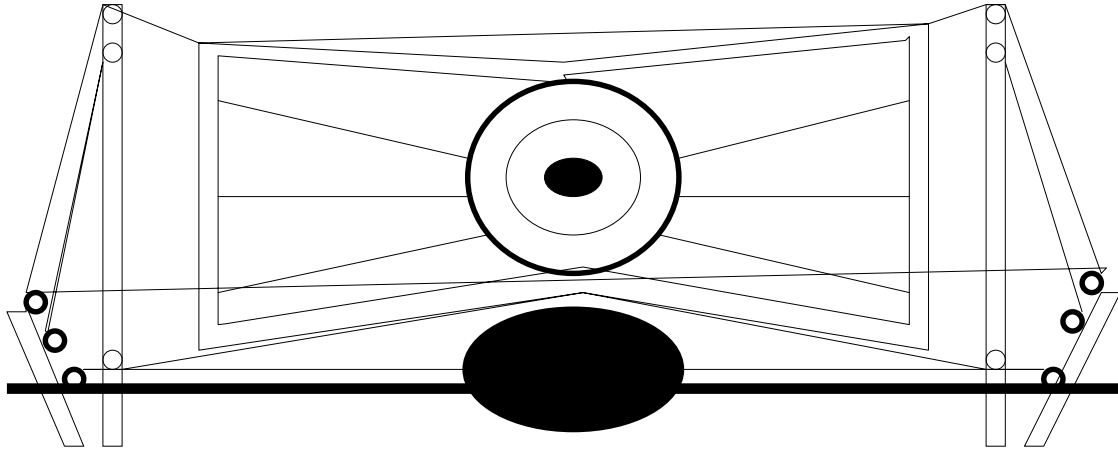


Figure 3.8

LOW ANGLE STRAFE TARGET

Target is a drag chute, centered at 11' AGL, with a 15 degree leanback. Distance between poles is approx 100'. Earth berm below target protects transducer (scoring device).



Winches and cables are used to maintain target height. A spare top cable is available. Target is hung inside a webbing, approx 60' across.

Scored area is approximated by the outer circle. Width across bottom of target is approx 34'. Height of scored area is approx 23'. Scoring is optimized for airspeeds above 450Kts for 20mm; for 30mm, scoring is optimized above 275Kts.

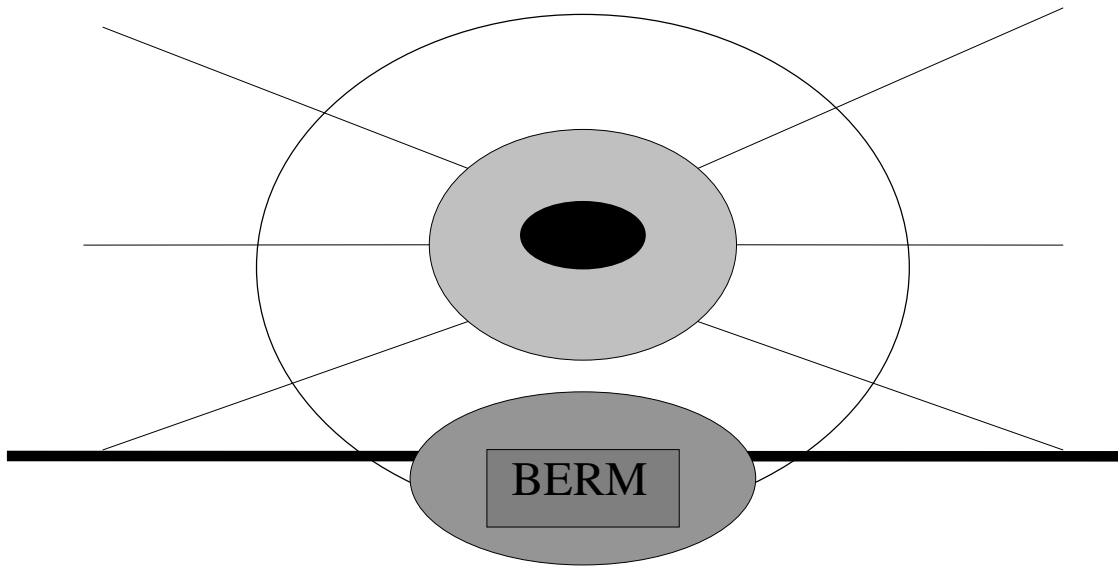


Figure 3.9

NIGHT RANGE LAYOUT

Ranges 1 and 2

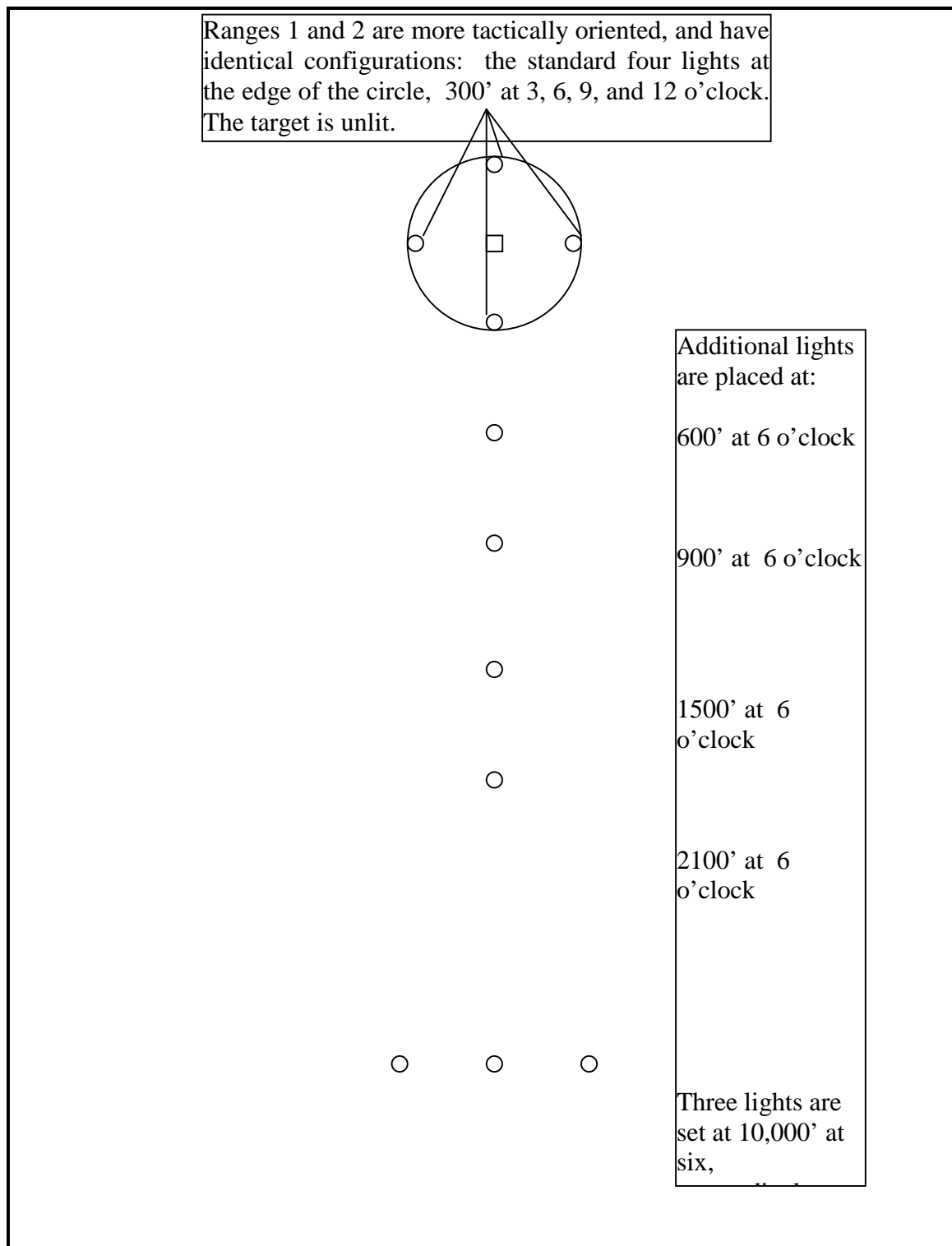


Figure 3.10

NIGHT RANGE LAYOUT

Ranges 3 and 4

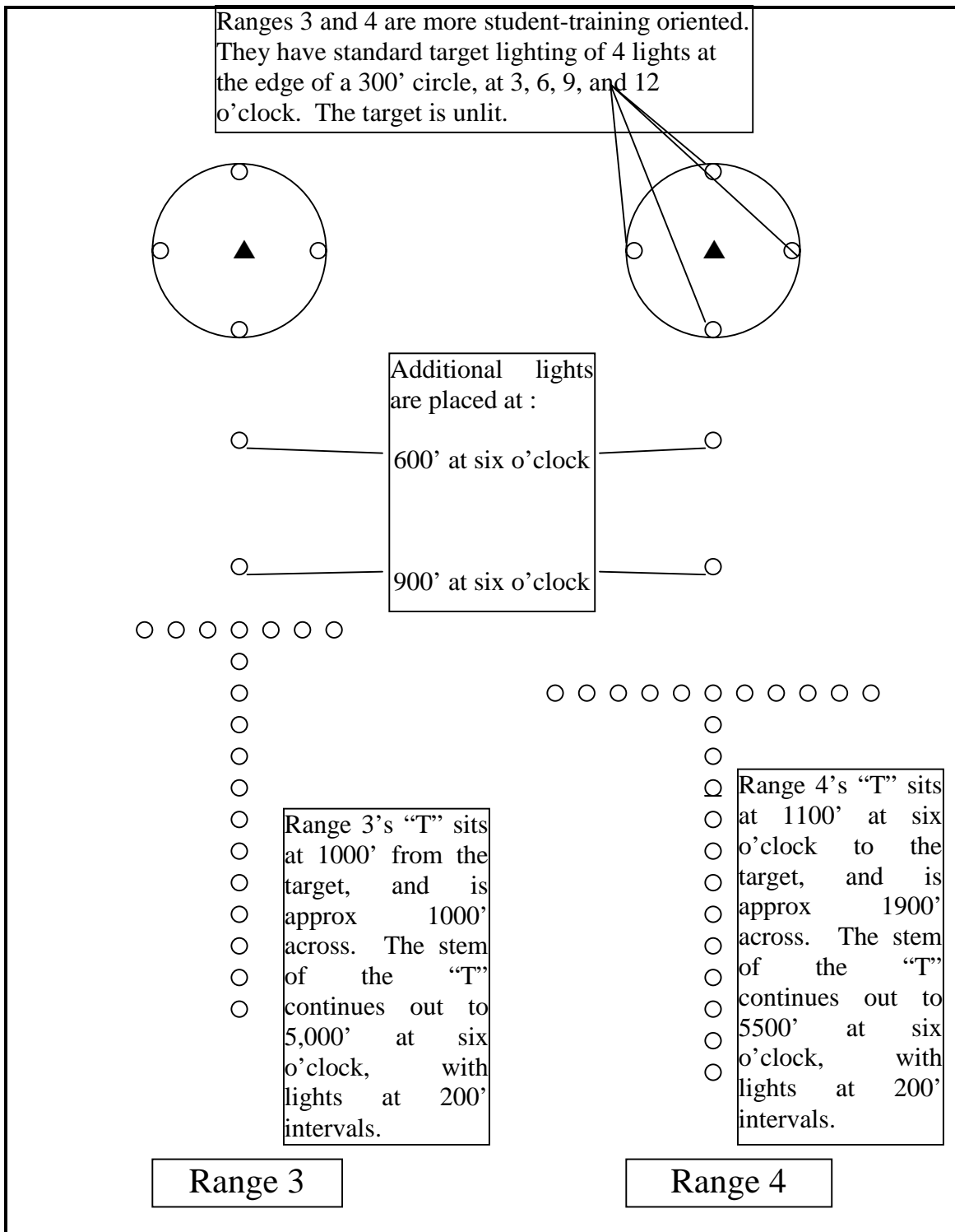


Figure 3.11

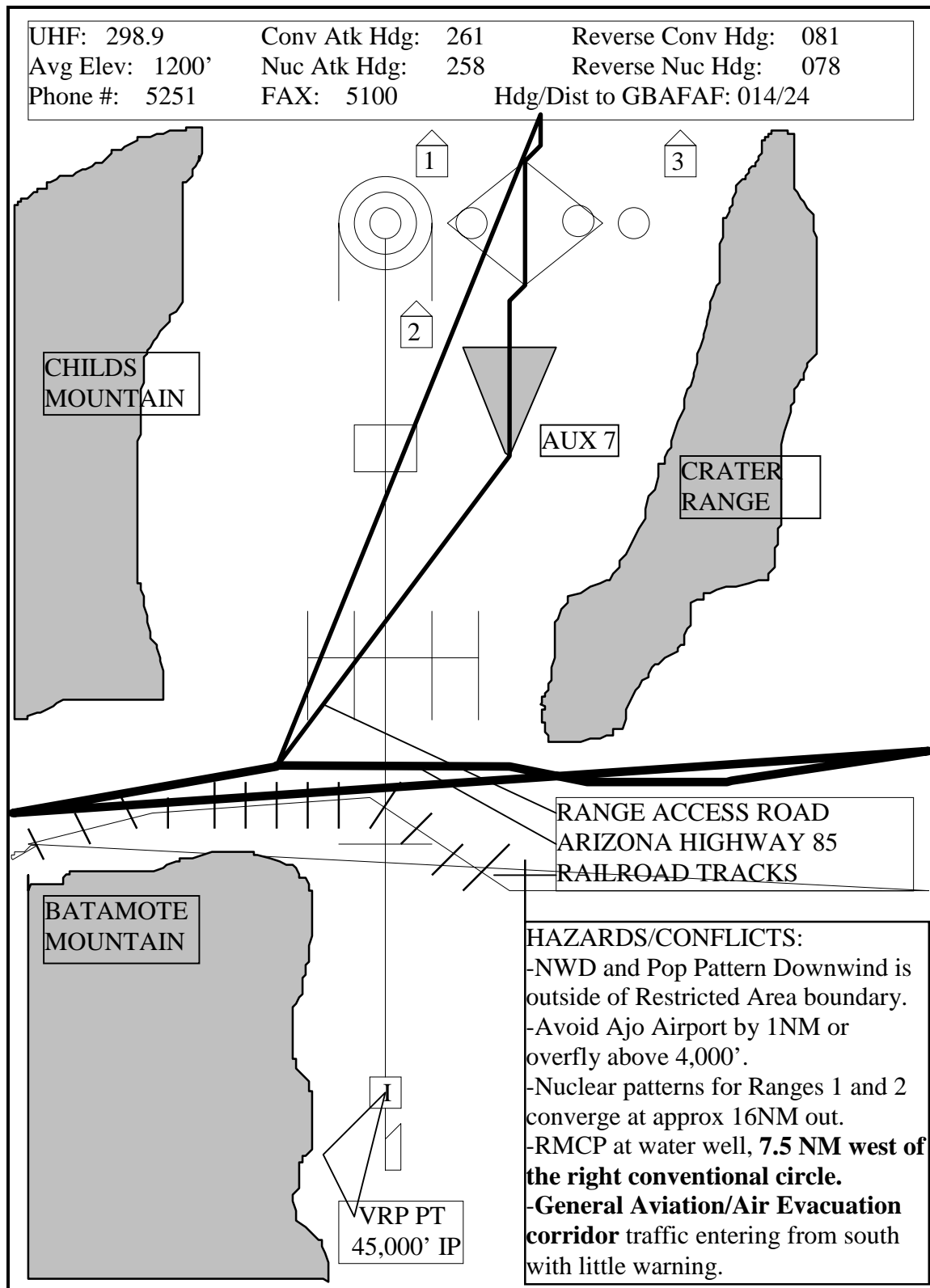
Goldwater Manned Ranges Survey Data (WGS-84)

POINT	RANGE 1	RANGE 2	RANGE 3	RANGE 4
NUC Target	N32 30.701 W112 57.652 1193'	N32 39.456 W112 54.019 1032'	N32 45.721 W112 41.638 1205'	N32 45.959 W113 05.416 723'
Right Target	N32 32.453 W112 57.671 1169'	N32 41.131 W112 53.251 1011'	N32 45.339 W112 41.978 1216'	N32 47.759 W113 05.437 696'
Left Target	N32 31.137 W112 57.683 1188'	N32 39.900 W112 53.816 1027'	N32 44.286 W112 42.922 1229'	N32 46.438 W113 05.425 716'
Applied Tactics Target	N32 32.650 W112 57.740 1169'	N32 41.300 W112 53.251 1005'	N32 44.200 W112 43.060 1250'	N32 47.920 W113 05.420 695'
OAP 1 (Radar Reflector)	N32 31.000 W112 58.505 1165'	N32 40.285 W112 54.824 933'	N32 46.163 W112 43.085 1155'	N32 45.518 W113 06.321 715'
OAP 2	N32 30.946 W112 56.855 1213'	N32 38.899 W112 53.212 1070'	N32 45.674 W112 40.903 1231'	N32 45.745 W113 04.505 738'
OAP 3	N32 33.250 W112 58.960 1120'	N32 42.317 W112 54.300 890'	N32 46.770 W112 42.700 1157'	N32 48.470 W113 06.930 778'
10 IP	N32 30.685 W112 55.702 1248'	N32 38.843 W112 52.172 1108'	N32 44.739 W112 40.080 1289'	N32 46.169 W113 03.482 745'
20 IP	N32 30.677 W112 53.763 1293'	N32 38.262 W112 50.399 1198'	N32 43.744 W112 38.530 1374'	N32 46.386 W113 01.567 766'
30 IP	N32 30.661 W112 51.806 1292'	N32 37.659 W112 48.580 1302'	N32 42.839 W112 37.112 1472'	N32 46.604 W112 59.588 791'
45 IP	N32 30.641 W112 48.870 1365'	N32 36.712 W112 45.679 1501'	N32 42.089 W112 35.938 1578' (40 IP)	N32 46.900 W112 57.080 812'

NUC TARGET TO	RANGE 1	RANGE 2	RANGE 3	RANGE 4
OAP 1	292.48 4740' 1165'	320.59 6504' 933'	289.90 7881' 1155'	240.01 5349' 715'
OAP 2	070.08 4357' 1213'	129.23 5344' 1070'	094.31 3779' 1231'	105.54 4849' 738'
OAP 3	336.52 16851' 1120'	355.25 17407' 890'	319.50 8370' 1157'	333.03 17086' 778'
10 IP	090.56 10022' 1248'	111.43 10177' 1108'	126.70 9959' 1289'	082.68 9995' 745'
20 IP	090.40 19983' 1293'	111.29 19932' 1198'	126.95 19937' 1374'	082.51 19895' 766'
30 IP	090.44 30040' 1292'	111.31 29957' 1302'	126.98 29044' 1472'	082.52 30118' 791'
45 IP	090.43 45124' 1365'	111.22 45914' 1501'	126.99 36588' 1578'	082.36 43090' 812'
RT CON TGT	359.49 10624' 1169'	021.20 10891' 1011'	217.10 10905' 1229' (*LEFT CONV TGT)	359.47 10915' 696'

Figure 3.12

Overview of Range 1



★Figure 3.13

Overview of Range 2

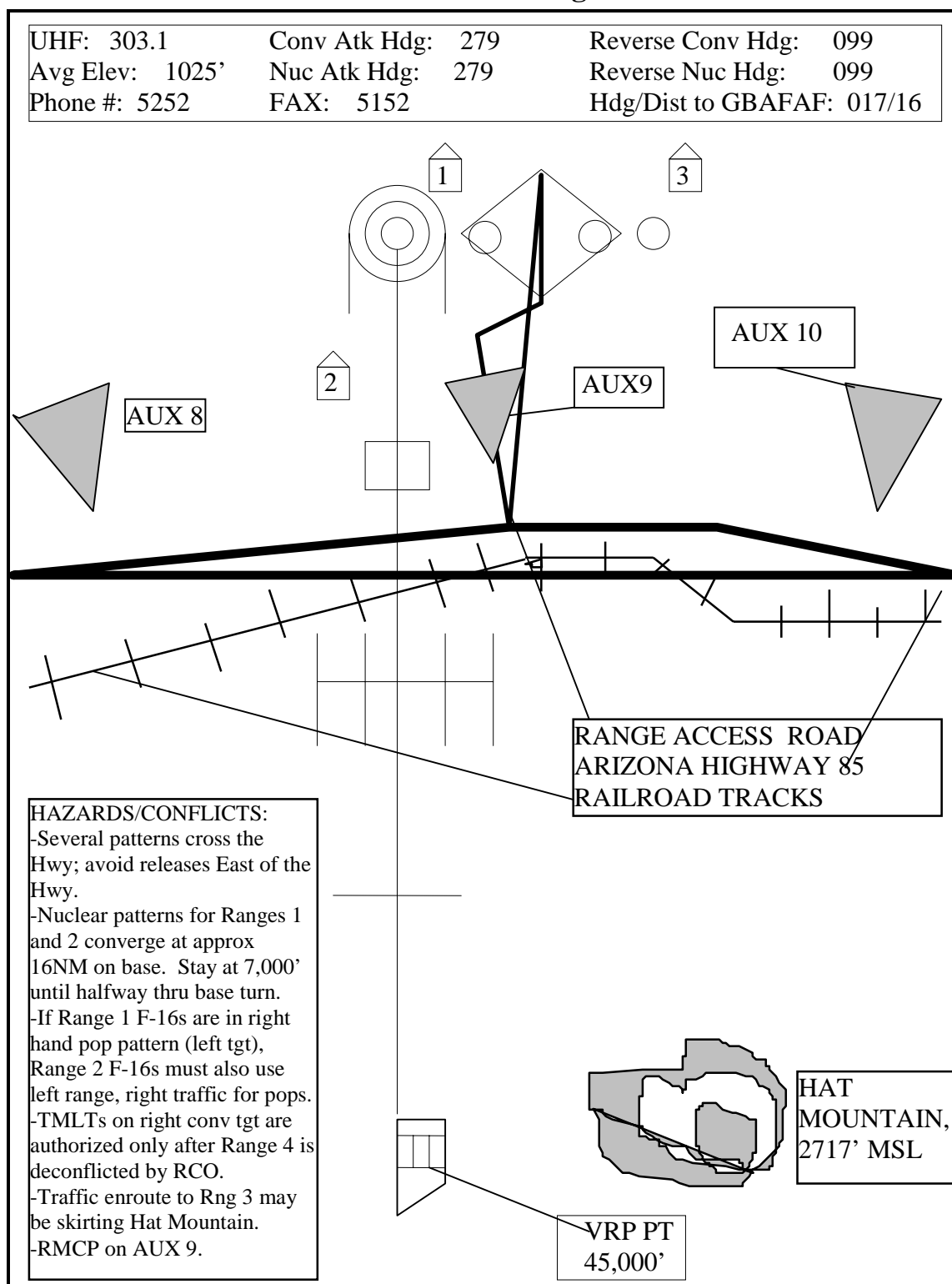


Figure 3.14

Overview of Range 3

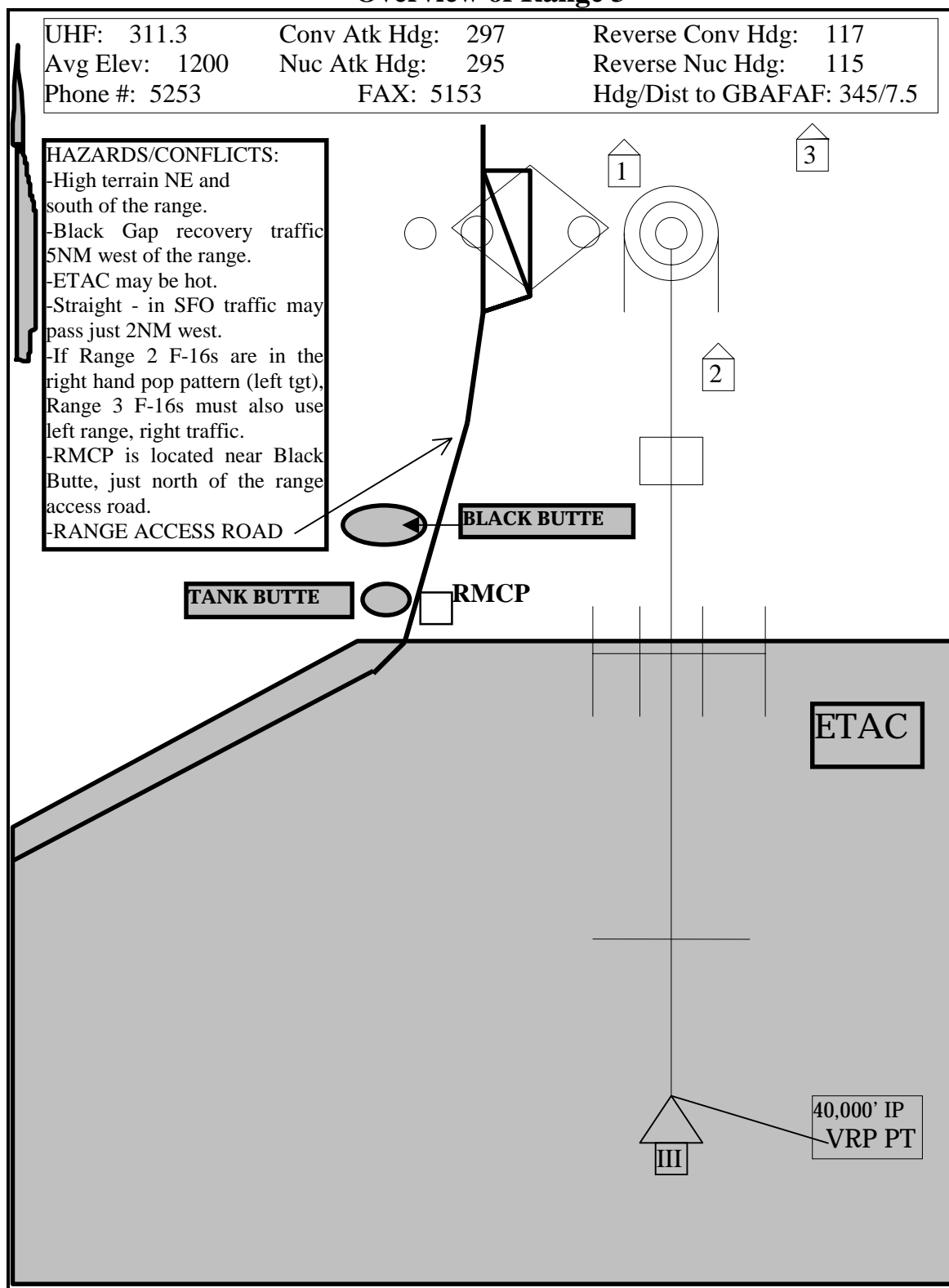
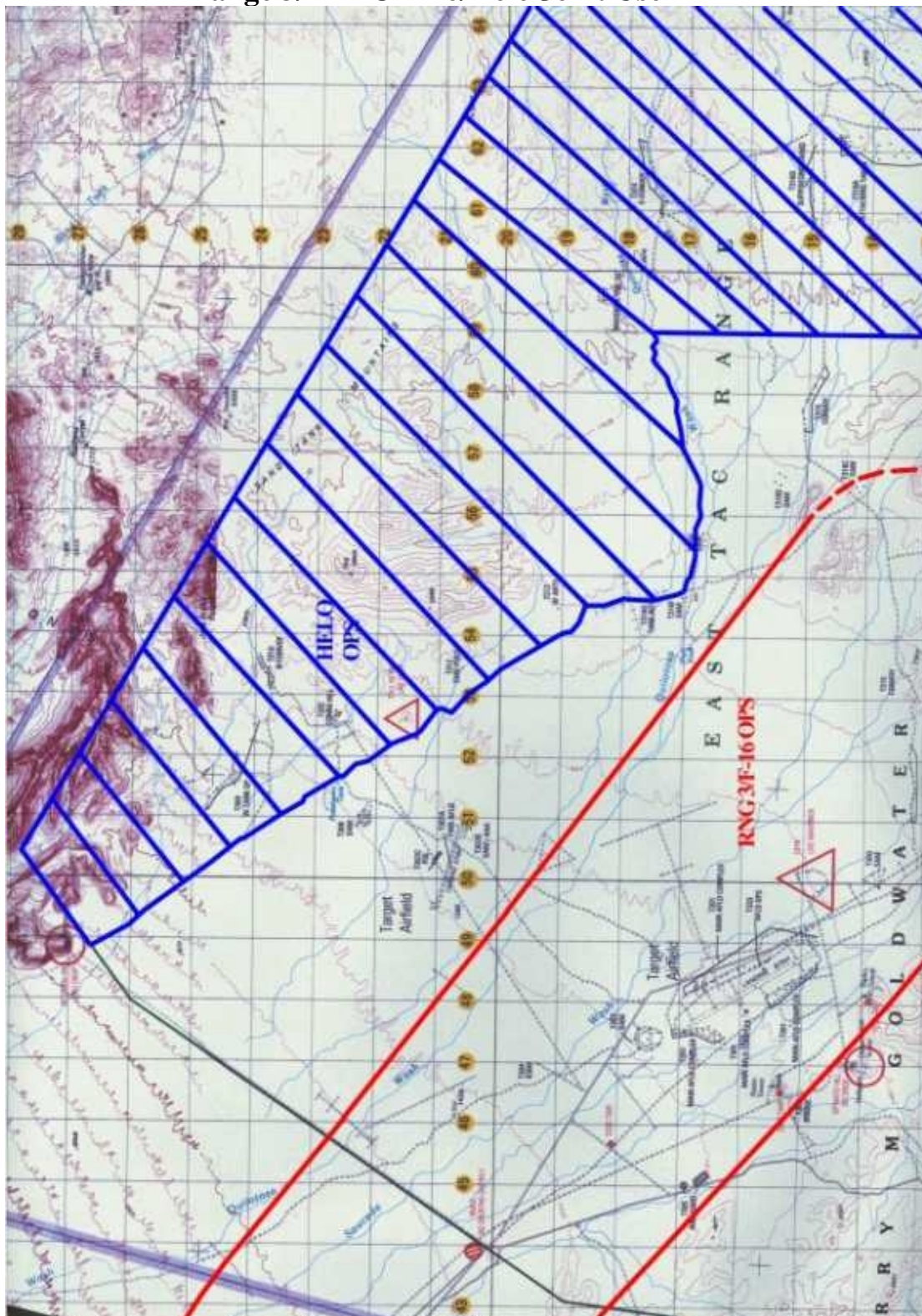


Figure 3.15

Range 3/ETAC F-16/Helo Joint Use

★Figure 3.16

Overview of Range 4

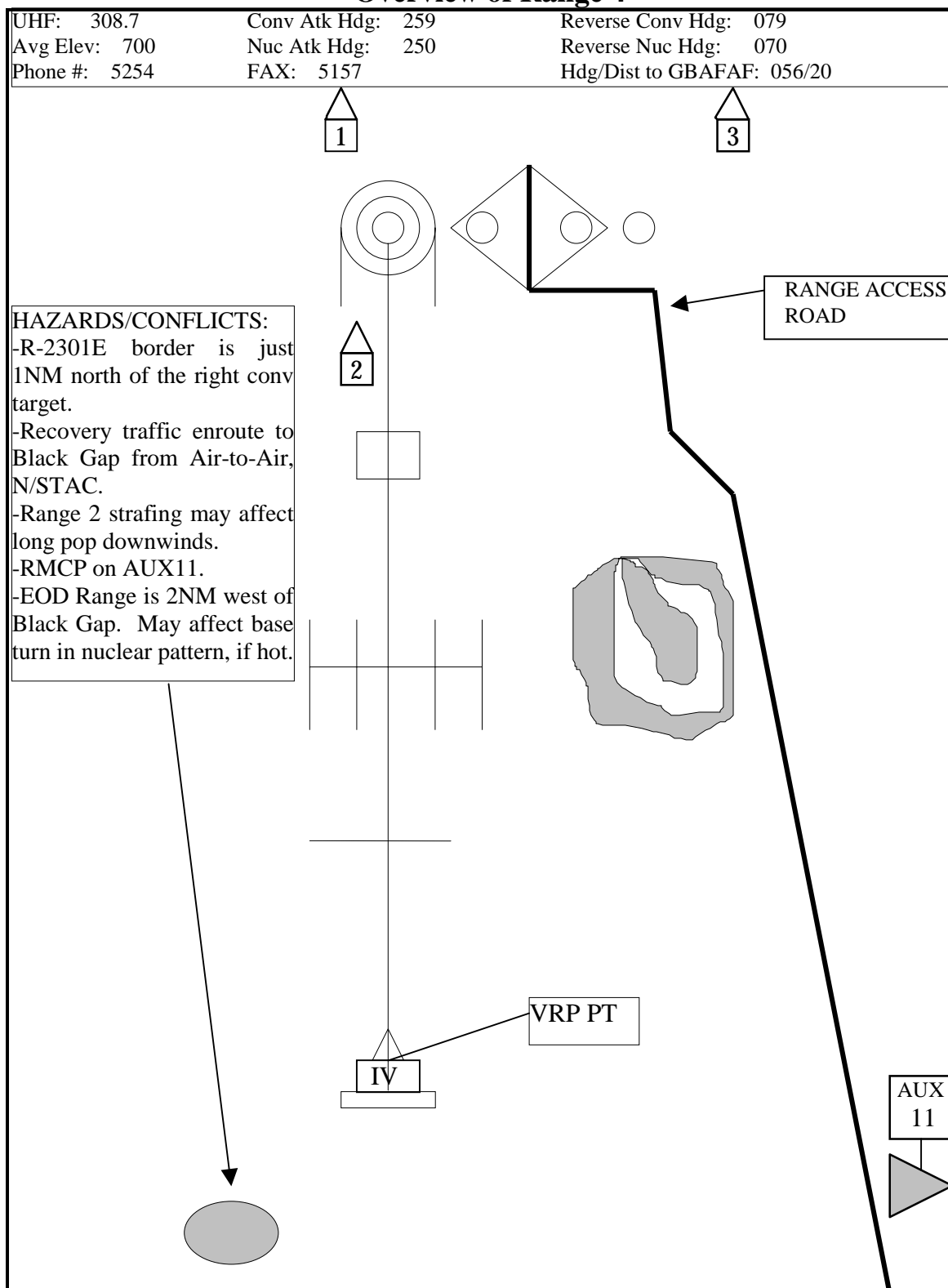


Figure 3.17

Chapter 4

UNMANNED TACTICAL RANGES

4.1. General. This chapter defines the BMGR Complex unmanned ranges, providing procedures for operations on the AIR-TO-AIR range, and on NTAC, STAC, and ETAC. Multiple flights may be operating on the TAC ranges, conducting various missions involving fixed-wing, helicopter, and ground support personnel. In these cases, it is imperative that the on-range Mission Commander keep Range Operations advised as to how many and what type of aircraft and personnel are on the range. It is recommended that as a flight or element departs, they advise Range Ops of who is remaining on the range.

★4.1.1. R-2301/R-2301E Description. R-2301 extends from the surface to 80,000', except over the Cabeza Prieta National Wildlife Refuge (CPNWR), where a 1,500' AGL restriction exists when not on a scheduled MTR. R-2301E is authorized for unrestricted supersonic operations above 5,000' MSL, except over the manned ranges, where supersonic is restricted to above 10,000' AGL. The Air-to-Air range is subdivided into Air-to-Air High (AAHI), Air-to-Air Low (AALow). AAHI and AALow may be scheduled separately. A 1,000' buffer zone (**24,000' to 25,000'**) exists **between NTAC/STAC and AAHI to allow flights to enter/exit NTAC and/or STAC when AAHI is "Hot"**. This buffer does not exist when the AAHI and NTAC and/or STAC are owned by the same flight.

4.1.2. R-2304 Description. R-2304 extends from the surface to 24,000'. Supersonic operations are not authorized. ETAC shares airspace with Range 3's nuclear and pop patterns, and requires special attention when joint use is in effect. The southern area of ETAC below the 07 easting gridline to the southern border of R2304 overlies Native American land and is a NO IMPACT AREA.

★4.2. Altitude Restrictions. NTAC, STAC and ETAC are surface to 24,000'.

★4.2.1. ETAC. ETAC **airspace extends from the surface to 24,000'**. The southern portion of ETAC overlies the Tohono O'odham Indian Reservation. The ETAC area below the 07 gridline is a NO IMPACT AREA. Any ordnance impacts in this area must be reported to Luke AFB Airspace Management, 56 RMO/ASM DSN 896-5855. Additionally, the town of Kaka (12SUB763975) is noise sensitive and will be avoided by 2 NM horizontally.

4.2.2. NTAC/STAC Description. NTAC and STAC airspace extends from the surface **to** 24,000' MSL. Flights in Air-to-Air High that wish more maneuvering airspace over NTAC and/or STAC must coordinate it directly with the appropriate unit that owns the airspace or if unscheduled, coordinate with Range Operations. When Range Operations issues range clearance, the airspace is considered scheduled.

4.2.3. NTAC/STAC Use. NTAC and STAC are normally scheduled and used separately, except for, Large Force Exercises (LFEs), and Live AGM firing. Users can request to use AALow or AAHI when additional maneuvering airspace is required. Live AGM firing requires the scheduling of both NTAC and STAC ranges (footprint considerations). When two flights are scheduled simultaneously for NTAC and STAC, flights will give a call on the other TAC range frequency when entering and departing the area for deconfliction.

4.2.4. CPNWR. Overflight of the CPNWR below 1,500' AGL is prohibited unless on a scheduled MTR.

4.3. Authorized Ordnance. Ordnance may be expended on the TAC ranges according to the authorized ordnance charts (See Figures 4.4, 4.9 and 4.14). Missile firing and Aerial Gunnery training can be conducted within the AIR-TO-AIR GUNNERY range according to this chapter, and other applicable regulations.

4.3.1. Ordnance Restrictions. Each range has targets designed for expenditure of live high explosive (HE) GP bombs, LGBs, guided missiles, rockets and expendable type rocket launchers. The following are NOT AUTHORIZED on live (HE) targets: bombs with other than impact fusing (except FMU-113), penetration fuzing, training ordnance, or HEI rounds. Additional restrictions include: no white phosphorus munitions on wooden targets (see paragraph 4.4.1.), only BDU-33 is authorized on IR Targets; no ordnance is allowed on Maverick training targets. Wire-guided ordnance is only authorized on ETAC. Wires from wire-guided ordnance must be removed from the range by the user, as soon as possible, but in no case later than the weekend following range usage. ALL CLUSTER SUB-MUNITION DISPENSING ORDNANCE IS PROHIBITED ON THE GOLDWATER RANGE. Units firing live AGMs on NTAC range must also own the STAC range to cover the footprint of the weapon.

★4.3.1.1. ANG SNOWBIRD Units Ordnance Restriction. ANG SNOWBIRD units will not expend High Explosive (HE) ordnance until a dedicated range orientation/overflight mission (dry/no ordnance, training or inert ordnance) is accomplished first. First sorties of the deployment will not be HE or live missions.

4.3.2. Air Intercept Missile Firing. Air Intercept Missile Firing requires special operations orders approved by 56 WG/CC. Units desiring live air-to-air missile firing can submit requests to the 56 RMO for coordination.

4.4. Target Descriptions. Complete target information is found in the figures in this chapter.

★4.4.1. Wood Targets. The following targets are constructed primarily of wood materials:

- All MIGs have wooden wings
- All Tactical range main-airfield buildings
- NTAC targets 104, 108, 112, 113, 114, 117 and 118
- STAC targets 208, 210, 211, 217, 218, 220 and 223
- ETAC targets 306, 316 A-F, 317, 318 and 330

4.5. Tactical Range Entry, Clearance and Departure. Ranges may be entered from appropriate stereo flight plans or any low level route that meets command level minimums and avoids known restricted areas.

4.5.1 Range Clearance. Obtain clearance from Range Operations on UHF 272.1 prior to entering the BMGR. NOTE: Range clearance is not Air Traffic Control (ATC) clearance.

★4.5.1.1. Flight check-in. Flights will check-in with Range Operations and give callsign, scheduled range(s), range time(s) and **if expending “Live” ordnance.**

★4.5.1.2. Range Operations Clearance. Range Ops will advise flights of altimeter setting, Gila Bend AFAF active runway, restrictions pertinent to that range(s), if the range has been reported previously cleared with the time reported (e.g. “NTAC reported clear by FALCON Flight at 1100L”) and the status of the range (i.e. hot with “_____” flight, cold, dry only, flights above XXX’ AGL only, closed) as well as cautions concerning any ground activity on that or adjacent ranges. If a flight is already on the range, Range Ops will pass that flight’s callsign (“STAC is showing hot with THUD flight”). Ordinarily, if ground personnel such as **environmental clearances, range contractor maintenance or ground party transit (enter/exit)**, missions will be dry only and limited to **500’ AGL**. When EOD personnel are conducting operations on the range, overflight will be restricted to **3,000’ AGL (10,000’ AGL if detonations are scheduled)**. If **unknown/unscheduled** personnel and/or vehicles are sighted, flights will cease deliveries, safe all weapons, rejoin, and make an airborne report to Range Operations.

4.5.2. Unscheduled Users. Unscheduled users may obtain clearance onto a cold range by contacting Luke Range Scheduling prior to takeoff, or Range Operations once airborne. Range Operations will coordinate with Range Scheduling. Flights are considered "scheduled" once clearance to enter is received.

4.5.3. Range Entry. Before entry onto the tactical ranges, flight leads will make a call in the blind on the primary range frequency. If the range was reported hot by Range Operations, the inbound flight will also contact the using flight to ensure deconfliction.

4.5.4. Clearing Pass. The first flight of the day to each TAC Range will make a clearing pass, no lower than 500’ AGL, over the range prior to expending any ordnance. Subsequent flights are required to perform a clearing pass to ensure the target area is clear of unauthorized persons or vehicles. A dry clearing pass is not required if: (a) range personnel, FAC, a departing flight or other aircraft can confirm that the range is clear. (b) Range Operations relays that the range is clear from anyone listed in paragraph a., provided not more than 1 hour has expired.

4.5.5. Before Departing. Coordinate transit over other ranges with flight leads/RCOs/Range Operations, BEFORE departing. If leaving other elements on the range, advise Range Ops as to exact number, type, and callsign.

4.5.6. Departure General. Depart according to specific range procedures, this chapter. Contact Range Operations to check off range, pass Expenditure Report IAW Figure 2.4 (**non Luke AFB-**

based aircraft only), range clearance status then contact ABQ Center for an IFR clearance BEFORE departing restricted air space.

4.6. Day TAC Range Procedures. Day operations cease at official sunset.

4.6.1. Normal Procedures. Normally at least two aircraft are required during conventional weapons operations. Single-ship sorties are allowed if authorized by other regulations. An airborne FAC aircraft and single fighter aircraft working together satisfy the two aircraft requirements. Flight leads are the clearance authority when a Forward Air Controller (FAC) is not present.

4.6.2. Patterns. According to appropriate regulations and course phase manuals. Restrictions to LIVE AGM firing are listed in the applicable range section.

4.6.3. Communications. All BMGR ranges have a common backup frequency, UHF 335.9. If the standard range working frequency will not be monitored, inform Range Operations of your working frequency. Use of HAVE QUICK or any non-standard frequency must be coordinated with Range Operations. Flights must return to the standard range frequency for the last five minutes of their range time.

4.6.4. Minimums. Every pass will simulate delivery of live ordnance. Minimum release and recovery altitudes will be dictated by regulations, safe escape, safe separation, or fuze arm time, whichever is highest.

★4.6.5. Wildlife Observed. If wildlife is observed in the target area, avoid weapons deliveries in the immediate area. **Targets may be closed due to Sonoran Pronghorn Antelope (endangered species) sightings.**

★4.7. **Night TAC Range Procedures.** Night operations begin at official sunset. Any tactical range can be scheduled for night operations. All aircraft will operate IAW specific aircraft lighting requirements. **Target illumination requirements, minimum and maximum number of aircraft and patterns authorized will be according to applicable regulations and course phase manuals.**

4.7.1. Dud Flares. All flight members will be aware of the quantity of flares to be dispensed for each type event. Duds and relative positions to the target will be called out by the aircraft observing unignited flares.

4.8. NTAC/STAC Combined Use. Use 296.5 for N/STAC combined use. These TAC ranges share the following common items.

4.8.1. Common Boundary. The common boundary between NTAC and STAC is identified by two 6m wide bladed strips running NW/SE, marking the entire length of the common boundary to aid in deconflicting flights when both ranges are occupied. A N/STAC common reflector is located on the south side of the double bladed strips at N32 34.254 W113 13.035, elevation 890'. Reflector consists of four B-52 wing tanks.

4.8.2. Joint Holding. N/STAC joint holding is available NW of Ajo, in the Childs Valley, south of the Range 1 4NM circle. Use 10 NM legs to avoid STAC and Ajo. Hold either below 4,000' or above 8,000'. This holding pattern lies within the CPNWR; remain above 1,500' AGL.

4.8.3. Hazards.

4.8.3.1. Controlled Ranges. Three controlled ranges (Ranges 1, 2, and 4) lie in close proximity to the NTAC/ STAC complex. Overflight may be scheduled, if necessary.

4.8.3.2. Transition Blocks. For detailed discussion, see paragraphs 4.1.1. and 4.2.2. Range Operations will advise flights at check in when this condition is either scheduled or already active. Flights entering or exiting their range can either circumnavigate the hot areas, or obtain clearance to transit the airspace from the using flight.

4.8.3.3. GFAC Positions. When occupied, do not expend ordnance in the direction of the GFAC as listed for each range.

4.9. NTAC Range.

4.9.1. General. See Figures 2.1, 2.2 and 4.3.

★4.9.2. NTAC Boundaries.

N32 45.000' W113 26.500' to
N32 44.973' W113 21.422' to
N32 41.047' W113 00.083' to
N32 32.051' W113 05.913' to
N32 36.360' W113 19.904' to
N32 37.500' W113 24.333' to the beginning

★4.9.2.1. NTAC Impact Area Boundaries.

N32 44.973' W113 21.422'	12STB7917025980 to
N32 41.047' W113 00.083'	12SUB1236018040 to
N32 32.051' W113 05.913'	12SUB0292001590 to
N32 36.360' W113 19.904'	12STB8119010010 to the beginning.

4.9.3. Communications. UHF Primary 296.5/ Sec 335.9.

★4.9.4. Airspace. **Surface to 24,000'**. Holding is available 5-10 NM west of Range 4; hold between 6,000'-10,000', LEFT TURNS.

4.9.5. NTAC Entries. (Figure 4.1)

4.9.5.1. NOLLS Entry. Maintain ATC clearance to NOLLS (BXK 175/39). Proceed direct to NTAC at 8,500'. Be alert for traffic departing STAC/NTAC between 9,500' and 17,000'.

4.9.5.2. Low Level/MTR Entry. Entry may be made via the appropriate military training route (MTR) as published in FLIP or, for A-10s/helicopters, from the LATN area below the SELLS MOA. From the southeast, enter the south end of the valley between Growler Mountains and the town of Ajo below 4,000', or above 8,000'. Avoid Range 1 (the strafe fan extends 1 KM west of the north tip of Child's Mountain). Remain at or above 1500' AGL over Cabeza Prieta, unless on a scheduled MTR.

4.9.6. Specific Targets and Ordnance Restrictions. Figures 4.3 - 4.7. NTACs' Okie Hill (elevation 1286', 2.5 KM south of HE Hill) is occasionally mistaken for HE Hill--DO NOT drop (HE) on Okie Hill. Units firing Live AGMs on NTAC range must also schedule STAC range to cover the footprint of the weapon. Wire-guided ordnance is NOT authorized on NTAC.

4.9.6.1. IR Targets. There are 5 IR targets on NTAC. Structures include 3 passive lego buildings (Targets 101-66, 101-67 and 101-68) and 1 passive truck (Target 101-69) located between the main airfield and HE Hill, plus an IR billboard (Target 105L) is positioned NE of the Target 105 complex. Only BDU-33 is authorized on IR Targets.

4.9.6.2. Target 5. Target 5 (Figure 4.3) is a non-scored target primarily used for nuclear weapons delivery profiles. Visual target acquisition is generally difficult. The center of the target consists of two white vehicles. Three concentric graded circles at 152m, 244m, and 610m radii are provided for air scoring. Radar reflectors are located east (OAP 1) and south (OAP 2) of the target and are oriented to provide optimum radar return for either a 082 degree (OAP 1) run-in from Mohawk Pass or a 162 degree (OAP 2) run-in from the Agua Caliente Mountains. Any final attack course is permissible.

4.9.6.2.1. Location. NW corner of NTAC, 31 NM from Gila Bend AFAF.

4.9.6.2.2. Coordinates and Elevations.

Target 5	N32 41.450	W113 17.750	647'
OAP 1	N32 41.570	W113 16.730	661'
OAP 2	N32 40.630	W113 17.430	663'

4.9.6.2.3. OAP Data from Target 5.

<u>Aimpoint</u>	<u>True Bearing</u>	<u>Range</u>	<u>Elev</u>
OAP 1	082.2	5,247'	661'
OAP 2	161.9	5,220'	663'

4.9.7. Ground FAC sites and LASER Use. There are two GFAC sites established on NTAC; both are certified for LASER operations and must be accessed on foot. Personnel may climb to whatever height is desired/ required for target observation; vehicles must not leave the access road. Both sites are within the footprint of LIVE AGM's; therefore, GFACs must clear the range to either Range 4 or to the water well (N 32 32.17 W113 05.030) for LIVE AGM firing.

4.9.7.1. Observation Point (OP) Alpha (Figure 4.3). Located at N32 38.212' W113 09.248' or 12STB9793013080, the saddle of a large pointed peak; the site is approximately 2,000' from the main access road. Visibility to the SW and NW are very good, and all targets that are visible are certified for LASER marking. Ground personnel are NOT authorized on OP Alpha during LIVE weapons deliveries.

4.9.7.2. OP Bravo (Figure 4.3). Located at N32 37.277' W113 04.379' or 12SUB0551011200, the side of a steep hill in the narrow valley; the site is approximately 1,000' from the main access road. Visibility to the north and south are good; the primary targets of opportunity are the AUX Airfield Complex and the Convoy (Targets 109-111). LASER marking is approved for these targets from this OP.

4.9.8. Attack Headings. Variable, random patterns are authorized. For live AGM firing, adhere to the heading restrictions in Figure 4.4.

4.9.9. Emergency Airfield. Gila Bend AFAF, heading 044/29 NM from center of NTAC.

4.9.10. Hazards/Conflicts.

4.9.10.1. Other Ranges. Proximity to other ranges makes it imperative aircrew remain within the confines of NTAC.

4.9.10.2. Crater Range Mountains. Terrain rises rapidly around targets located in and around the Crater Range Mountains.

4.9.10.3. ACMI Sites. Do not expend ordnance on ACMI remote sites (#W5) N32 38.816' W113 20.466', (#W6) N32-37.667' W113-05.033' and (#W11) N32 39.000' W113 11.200'.

★4.9.10.4. Environmental Observation Towers. Four twenty-foot observation towers were erected on NTAC. The towers are painted orange. No ordnance is authorized on these towers. The locations of the towers are approximately:

	<u>UTM</u>	<u>WGS-84</u>
1.	12STB9745010700	N32 37.027' W113 09.568'
2.	12STB9910009220	N32 36.244' W113 08.494'
3.	12STB9740008280	N32 35.717' W113 09.568'
4.	12STB9570009300	N32 36.250' W113 10.668'

4.9.10.5. RMCP. The Range Munitions Consolidation Point for Range 1/ NTAC/ STAC is located 1NM east of the NTAC border at the water well at N32-32.170' W113-05.030'. Do not drop on or overfly this point.

4.9.10.6. OPs. When occupied, do not expend ordnance in the direction of the GFAC (OP Alpha and Bravo) sites located at 12STB9793013080 and 12SUB0551011200. Ground personnel are NOT authorized on OP Alpha during LIVE weapons deliveries.

4.9.11. NTAC Exits. Check out with Range Ops before departing your range. For IFR recoveries, remain within R-2301E until a clearance is obtained from ABQ Center. Ensure you are aware of the altitudes in use on the adjoining ranges.

4.9.11.1. North Exit. Proceed at 9,500'-17,000' to the NE corner of NTAC, then direct COOLY (GBN 200/10). Or, depart to the NW corner of NTAC. Or, overfly NTAC between 24,000' and 25,000' (within the 1,000' buffer).

4.9.11.2. East Exit. Proceed down the Crater Mountains between Range 1 and 2 to Coffeepot Mountain (**GBN 156/31**) at 9,500'. Confirm status of Range 1 or 2 as necessary if transiting.

4.9.11.3. South Exit. If STAC is cold, proceed to the SE corner of STAC, then proceed southeast. Maintain VFR altitudes between 4,000' and 8,000' until clear of the restricted areas. Avoid the holding area, the town of Ajo, and remain clear of the SELLS CDE Low MOA; then VFR below 10,000' SELLS AB Low. If STAC is active, departure must be between 24,000' and 25,000' or around STAC range to the east (then avoiding the active manned ranges).

4.9.11.4. Casual Users. Normally use the North Exit described above. Contact ABQ Center on 288.3, or assigned frequency, for an assigned altitude to continue IFR clearance from GBN VORTAC or ARSON (**BXK 205/52**). If deviations are necessary, remain clear of other hot ranges.

4.10. STAC Range.

4.10.1. General. (Figures 2.1, 2.2 and 4.8).

★4.10.2. STAC Range Boundaries.

N32 37.500' W113 24.333' to
 N32 36.360' W113 19.904' to
 N32 32.051' W113 05.913' to
 N32 30.484' W113 06.407' to
 N32 30.492' W113 08.514' to
 N32 25.130' W113 08.483' to
 N32 16.800' W112 56.200' to
 N32 12.000' W112 57.000' to
 N32 12.000' W113 06.000' to
 N32 18.000' W113 15.000' to
 N32 27.750' W113 21.500' to the beginning

★4.10.2.1. STAC Impact Area Boundaries.

N32 36.360' W113 19.904'	12STB8119010010	to
N32 32.051' W113 05.913'	12SUB0292001590	to
N32 30.484' W113 06.407'	12SUA0209098710	to
N32 30.492' W113 08.514'	12STA9879098790	to

N32 25.130' W113 08.483' 12STA9864088880 to
N32 25.118' W113 18.358' 12STA8316089180 to the beginning.

4.10.3. Communications. UHF Primary 315.0/Sec 335.9.

4.10.4. Airspace. Surface to 24,000'. Holding is available northwest of Ajo in Child's Valley, south of Range 1. Remain clear of STAC, Range 1 and Ajo. Hold below 4,000' or between 8,000'-10,000'.

4.10.5. STAC Entries.

4.10.5.1. NOLLS Entry. Maintain ATC clearance to NOLLS (BXK 175/39). Proceed direct to STAC at 8,500' remaining just east of the NTAC east boundary. Be alert for traffic departing STAC/NTAC between 9,500' and 17,000'.

4.10.5.2. BUGGS Entry. Maintain ATC clearance to BUGGS (LUF 164/55). At BUGGS, descend to 8,500' and maintain altitude until entering R-2301E. Avoid R-2304/ETAC if Hot. Pass west of Cimarron Peak and southwest of Ajo (under the SELLS MOA).

★4.10.5.3. Low Level/MTR Entry. Entry may be made via the appropriate military training route (MTR) as published in FLIP or, for A-10s/ helicopters, from the LATN area below the SELLS MOA. From the southeast, enter the south end of the valley between Growler Mountains and the town of Ajo below 4,000', or above 8,000'. Avoid Range 1 (the strafe fan extends 1 km west of the north tip of Child's Mountain). Remain at or above 1500' AGL over Cabeza Prieta, unless on a scheduled MTR. **From the north, coordinate with NTAC and/or Air-to-Air users.**

4.10.5.4. Casual Users. Use any entry above. Contact Range Operations (UHF 272.1) for clearance on range IAW paragraph 4.5. NOTE: Range clearance is not an Air Traffic Control (ATC) clearance. If the Range is hot, hold as described above. While holding, monitor the correct TAC Range frequency.

4.10.6. Specific Target and Ordnance Restrictions. Figures 4.8-4.12. Adhere to the heading restrictions in Figure 4.9. Wire-guided munitions are not authorized on STAC.

4.10.6.1. IR Targets. There are three IR targets on STAC. Two IR Targets are LEGO Ammo Bunkers (Targets 201-71 and 201-72) east of the main airfield. An IR Billboard is located just northeast of the Forward Airfield at N32 27.767' W113 10.800' elevation 762'. Only BDU-33 is authorized on IR Targets.

4.10.7. TOSS Usage. All STAC flights should attempt to use TOSS for at least one pass. If TOSS scoring is not going to be used, the following information must be passed to Century. This information is passed with the initial call to Century, e.g., "Century, Luke 01 entering STAC, negative TOSS, non-TOSS scoreable target". For additional restrictions/hazards see specific range data, this chapter.

★4.10.7.1. TOSS Procedures. Coordinate with TOSS Scoring prior to takeoff by telephone (DSN 896-5225) or by FAXing the appropriate information (DSN 896-5297) using the TOSS Briefing Guide, Figure 4.18. TOSS can also be air scheduled with approximately a 5 minute lead time prior to TOT on primary range frequency. TOSS monitors STAC primary range frequencies for all scheduled range periods. For TOT's prior to 0800L, attempt to coordinate one working day prior to the mission. TOSS target numbering is according to STAC range figures. TOSS targets are expressed as individual aimpoints on an area target. TOSS targets should be referenced in conjunction with their overall TAC Range target number (i.e., TOSS Target 201 - 83 is a single TOSS - scoreable aimpoint on the 201 complex). All users requesting TOSS scoring at night or on weekends will coordinate funding with 56 RMO/QAE.

4.10.7.2. TOSS Communications. Check in with TOSS Operations (Call Sign "Century") on the range working frequency (STAC: 315.0) prior to range entry. Pass TOSS information and notify Century of any changes. If radio contact is not established, continue the mission and re-attempt contact as the mission progresses. Attack the targets in the same order as briefed, scoring may still be possible.

4.10.7.3. TOSS Range Communications. Communications on range should include "Call Sign, In" prior to every pass. This alerts TOSS personnel and enhances the chances for successful scoring.

4.10.7.4. TOSS Scoring. Scores will be given in meters, oriented to true north, to the nearest clock position (e.g., 25/9). Accuracy is about one meter. Training munitions incorporating a spotting charge are preferable to inert or non-marking munitions. No time limit is required between scoring of targets within the same sector, however, if pilots require targets from different sectors be scored (e.g., Target 201 - 17 first; then Target 201 - 58), a five minute delay is required to change camera positions. If unsure about sectors, ask the TOSS technician during the pre-mission briefing. Scores can be given at the end of the mission on UHF, over telephone, or via FAX printouts. Hard copy printouts containing target area graphics, radial/distance scores, and X-Y plots for each bomb impact scored can be obtained at installations having FAX capability. Notify TOSS beforehand of your DSN FAX number.

4.10.7.5. TOSS Debrief. Debrief TOSS when necessary by telephone. Shortfalls, recommendations, and commendations are desirable and are necessary forms of feedback.

4.10.8. Ground Forward Air Controller (GFAC) sites and LASER Use. There are two approved GFAC Observation Points (OPs) on STAC. Both are certified for LASER operations. These sites may only be reached on foot. Personnel may climb to whatever height is desired/ required for target observation; vehicles must not leave the access road. Both sites are within the footprint of LIVE AGM firing (on NTAC); GFACs must evacuate to at least the water well (N 32 32.170' W113 05.030') for LIVE FIRE AGMs.

4.10.8.1. OP Delta. Located at N 32 30.254' W113 09.479' or 12STA9727098380, a small hill overlooking the friendly tank positions (Target 223). All targets to the south and west are visible and are certified for LASER marking.

4.10.8.2. OP Echo. Located at N 32 31.053' W113 10.820' or 12STA9520099900, the west face of a large hill next to the access road. All visible targets to the west and southwest are certified for LASER marking.

★4.10.8.3. OP Red Point. Located at N 32 32.500' W113 17.500' or 12STB845028, the east face of a hill, 4-5 km west of the main airfield (T201). OP Red Point will not be scheduled for use when Lives are scheduled or when Ops Delta and/or Echo are scheduled.

4.10.9. Attack Headings. Variable random patterns are authorized. Refer to Figure 4.9 for specific ordnance heading restrictions.

4.10.10. Emergency Airfield. Gila Bend AFAF, heading 029/ 35 NM from center of STAC.

4.10.11. Hazards/Conflicts.

4.10.11.1. CPNWR Overflight. Overflight of the Cabeza Prieta is restricted to a minimum altitude of 1,500' AGL, unless on a scheduled MTR. Final arming will not be accomplished until on range property.

4.10.11.2. Terrain. Terrain is significant, and elevations change rapidly. Use caution when attacking targets in mountainous areas.

4.10.11.3. Other Ranges. Proximity of NTAC and Range 1 makes it imperative aircrew remain within the confines of STAC.

4.10.11.4. TOSS Cameras. Do not expend ordnance on TOSS Cameras located at N32 32.600' W113 17.050' and at N32 34.750' W113 15.650'.

★4.10.11.5. Environmental Observation Towers. Four twenty-foot observation towers were erected on STAC. The towers are painted orange. No ordnance is authorized on these towers. The locations of the towers are approximately:

	<u>TOWER UTM</u>	<u>TOWER WGS-84</u>
1.	12STM9000003000	N32 32.779' W113 14.225'
2.	12STM9150002000	N32 32.255' W113 13.254'
3.	12STM9000000900	N32 31.643' W113 14.197'
4.	12STM8916002160	N32 32.315' W113 14.751'

★4.10.10.6. OPs. When occupied, do not expend ordnance in the direction of the Ops.

★4.10.10.6.1. OP 'DELTA' 12STA9727098380

★4.10.10.6.2. OP 'ECHO' 12STA9520099900

★4.10.10.6.3. OP 'RED POINT' 12STB845028

★4.10.10.6.4. OP ‘FOXTROT’ 12STB946010. OP ‘FOXTROT’ was established specifically for threat emitter use and will not be scheduled when ‘Lives’ are scheduled on STAC.

4.10.10.7. RCMP. The Range Munitions Consolidation Point for Range 1/NTAC/STAC is located 1 NM east of the NTAC border at the water well at N32-32.170’ W113-05.030’. Do not drop on or overfly this point.

4.10.11. STAC Exits. Check out with Range Ops before departing your range. For IFR recoveries, remain within R-2301E until a clearance is obtained from ABQ Center. Ensure you are aware of the altitudes in use on the adjoining range. If NTAC is active, departure must be between 24,000’ and 25,000’, or around the NTAC airspace to the east (then avoid the active manned ranges). (Figure 4.2).

4.10.11.1. North Exit. If NTAC/AAHI is cold or you own combined NTAC/STAC/AAHI airspace, proceed at 9,500’-17,000’ to the NE corner of NTAC, then direct COOLY (GBN 200/10). If NTAC is hot, overfly NTAC in the 24,000’ – 25,000’ altitude buffer.

4.10.11.2. East Exit. Proceed down the Crater Mountains between Range 1 and 2 to Coffeepot Mountain (GBN 156/31) at 9,500’. Confirm status of Range 1 or 2 as necessary if transiting. Proceed south of Ajo at 4-8,000’.

4.10.11.3. South Exit. Proceed to the SE corner of STAC, then proceed southeast. Maintain VFR altitudes between 4,000’ and 8,000’ until clear of the restricted areas. Avoid the holding area, the town of Ajo, and remain clear of the SELLS CDE Low MOA; then VFR below 10,000’ in SELLS AB Low MOA.

4.10.11.4. Casual Users. Normally use the North Exit described above. Contact ABQ Center on 288.3, or assigned frequency, for an assigned altitude to continue IFR clearance from GBN VORTAC or ARSON (BXK 205/52). If deviations are necessary, remain clear of other hot ranges.

4.11. ETAC Range.

4.11.1. General. ETAC and Range 3 will not be used simultaneously, except as specified in par 3.16.10., Joint Use Procedures. See Figures 3.16, 4.13-4.17.

4.11.2. Boundaries.

N32 46.677’	W112 35.842’	12SUB5040027800	to
N32 38.503’	W112 18.746’	12SUB7690012330	to
N32 33.005’	W112 18.756’	12SUB7676002170	to
N32 32.997’	W112 30.513’	12SUB5836002400	to
N32 37.415’	W112 41.049’	12SUB4200010810	to
N32 41.758’	W112 40.369’	12SUB4319018820	to
N32 45.678’	W112 37.368’	12SUB4799025990	to the beginning.

4.11.3. Communications. Confirm the status of Range 3 with Range Operations. If it is open, advise the RCO on Range 3 UHF 311.3 before entering ETAC, and upon departing. ETAC missions will operate on UHF 305.6.

★4.11.4. Airspace. Surface to **24,000'**.

4.11.5. Entries (Figure 4.1). In all cases, contact Range Operations for status of all ranges and ETAC High.

4.11.5.1. BUGGS/Paradise Wells Entry. Maintain ATC clearance to BUGGS (LUF 164/55). Depart BUGGS direct ETAC, descend as required. Enter VFR at Paradise Wells.

4.11.5.2. Cimarron Peak Entry. Depart Cimarron Peak (GBN 142/34) direct to ETAC. Maintain 7,000' until clear of Cimarron Peak holding, then descend to and maintain 6,500' until established on range.

4.11.5.3. Low level/MTR entry. Depart Cimarron Peak (GBN 142/34) direct ETAC, remain below 5,000' until on range. VR 242 provides a north entry to ETAC.

4.11.5.4. LATN Entry. Obtain clearance from Range Ops. Enter below 5,000' on an easterly arc from Gila Bend AFAF to Cimarron Peak (GBN 142/34).

4.11.5.5. Casual Users. Use any entry above, or file IFR to the R-2304 entry/delay enroute point, Stanfield VORTAC (TFD) 210/29. When cleared to enter the restricted area, proceed to Cimarron Peak (GBN 142/34), arriving there at 7,000'. Contact Range Operations (UHF 272.1) for clearance to enter ETAC. Depart Cimarron Peak and follow procedures above.

4.11.6. Specific Targets and Ordnance Restrictions. See Figures 4.13-4.17.

4.11.6.1. IR Targets. There are three IR targets on ETAC. The targets are revetted aircraft (Targets 301-G and H) located on the NW corner of the main airfield and a passive 4-sided LEGO building (Target 301- I) east of the main taxiway, approximately mid-field (see Figure 4.16). Only BDU-33 is authorized on IR Targets.

4.11.7. Ground FAC sites and LASER Use.

4.11.7.1. Non-specular Targets. Non-specular targets are east of, and include targets 301 and 307.

4.11.7.2. Specular Targets. Specular targets are east of and include targets 315 and 316D.

4.11.7.3. GFAC Sites/Ground LASER Use. There are two Observation Point (OP) sites cleared for GFAC use and for LASER target designation. Both sites require 4WD vehicles to access.

4.11.7.3.1. OP Charlie Hill. The preferred site is Charlie Hill at N32 46.237' W112 36.808' or 12SUB4888027010. It lies outside the impact area and the weapons footprints of all approved

ordnance. LASER use is unrestricted in an arc from Target 305 east to Target 310, except, LASERs may not be fired in the direction of NATO Hill when it is occupied.

4.11.7.3.2. OP NATO Hill. The secondary Site is NATO Hill at N32 39.156' W112 37.883' or 12SUB4700013950. This site is close to the Main Airfield complex and the LIVE AGM targets. Personnel must evacuate to at least the Range 3 Flank Tower for LIVE AGM firing. LASER use is unrestricted except in an arc from the Range 3 access road clockwise to Charlie Hill.

4.11.8. Attack Headings. Variable, random patterns authorized. Adhere to heading restrictions in Figure 4.9.

4.11.9. LIVE FIRE AGMs. Due to the large footprint of AGMs, GFACs must clear the range to at least Range 3 Flank Tower for LIVE FIRE AGMs (exception: Charlie Hill lies outside the AGM footprint when used against target 318 and does not need to be vacated).

4.11.10. Emergency Airfield. GBAFAF, 312 degrees for 15 NM from center of ETAC.

4.11.11. Holding. Hold east of Cimarron Peak (GBN 142/34), left turns, 270 degrees inbound heading, 10 NM legs, maintain 7,000'.

4.11.12. Exits (Figure 4.2). Check out with Range Operations, then:

4.11.12.1. Luke AFB VALLY Recovery. Luke fighters contact ABQ Center prior to departing the restricted area and obtain IFR clearance for VALLY Recovery. Normally climb to 11,000'.

4.11.12.2. Davis-Monthan/Tucson Recoveries. Davis-Monthan/ Tucson fighters depart via a climbing turn to the north, east, or southeast. Do not exit west of the double-bladed ETAC boundary, or southwest of a line from Black Butte through NATO Hill. Maintain 5,500' to 9,500' and monitor UHF 272.1 until clear of R-2304. Be alert for aircraft exiting Ranges 2 and 3. Climb/ descend and proceed on course, remaining 9,500' or below under the SELLS MOA.

4.11.12.3. Casual Users. Contact ABQ Center on UHF 288.3 for IFR clearance direct to Gila Bend VORTAC (CH 113), then as filed.

4.11.13. Hazards/Conflicts.

4.11.13.1. Joint Use. Joint Use of Range 3 and ETAC may be in progress. See par 3.16.10 for joint-use procedures.

4.11.13.2. Range 3. Range 3 is northwest of and adjacent to ETAC . If Range 3 is closed, ground personnel may be working on Range 3 while ETAC Range is hot. ETAC flights will ensure they avoid Range 3, unless scheduled for both. Remain east of the double-bladed line (Range 3/ ETAC boundary).

4.11.13.3. Entry and Exit Traffic. Use caution for range entry and exit traffic just south of the ETAC Range.

4.11.13.4. IFR/VFR Recovery Points. Avoid IFR/ VFR recovery points for flights recovering to Luke from the SELLS training area.

★4.11.13.5. EW Sites. Two EW sites are located in the vicinity of ETAC. These sites are normally unmanned, however, overflight is not authorized. Site locations are:

A Site:	N32 46.237'	W112 36.808' (ETAC OP "Charlie")
B Site:	N32 49.000'	W112 41.000' (in R2305)

4.11.13.6. Target 309. (West Tank Group) Do not strafe from 210 degrees to 330 degrees, if Range 3 is hot.

4.11.13.8. Mountainous Terrain. Mountainous terrain located throughout target area.

4.11.13.9. OPs. When occupied, do not expend ordnance in the direction of the GFAC site located at OP 'NATO HILL' N32 39.156' W112 37.883' or 12SUB4700013950..

4.11.13.10. Range Munitions Consolidation Point (RMCP). The RMCP for Range 3/ETAC is located just north of the range road, near the south end of the double-bladed ETAC boundary at N32-42.42 W112-40.12. Do not point at or overfly this point.

4.11.13.11. Tohono O'odham Indian Reservation. The southern portion of ETAC overlies the Tohono O'odham Indian Reservation. The ETAC area below the 07 gridline is a NO IMPACT AREA. Any ordnance impacts in this area must be reported to Luke AFB Airspace Management, 56 RMO/ASM DSN 896-5855. Additionally, the town of Kaka (12SUB763975) is noise sensitive and will be avoided by 2 NM horizontally.

4.12. AIR-TO-AIR Range (Figures 2.1 and 2.2)

4.12.1. AAHL.

4.12.1.1. Location. Approximate center is GBN 210/52.

4.12.1.2. Boundaries. Boundaries are coincident with R-2301E. See par 2.2.1. for coordinates.

4.12.1.3. Communications. UHF Primary 308.9/ Secondary 335.9.

★4.12.1.4. Vertical Limits. Airspace altitude - 11,000' through 80,000'; except only **at or above 25,000' when NTAC, STAC, Range 1, Range 2 and Range 4 are active.**

4.12.1.5. Authorized Ordnance. TP/TPT. NOTE: Firing or delivery of air-to-air ordnance in the area over NTAC or STAC Ranges is prohibited.

4.12.1.6. Emergency Airfield. Gila Bend AFAF, 025 heading/49 NM from the extreme southern tip of the Mohawk Mountain Range (approximate center of AIR-TO-AIR Ranges).

4.12.2. AA LOW.

4.12.2.1. Location. Under AAHI to the west, south, and southwest of N/STAC.

4.12.2.2. Boundaries.

4.12.2.2.1. AALOW is defined as:

N32 44.250'	W113 41.100'	to
N32 46.000'	W113 35.000'	to
N32 46.600'	W113 27.000'	to
N32 27.750'	W113 21.500'	to
N32 18.000'	W113 15.000'	to
N32 12.000'	W113 06.000'	to
N31 58.000'	W113 06.000'	to
N32 06.000'	W113 31.000'	to the beginning.

4.12.2.3. Communications. AA LOW only - UHF Primary 324.2/ Sec 335.9.

★4.12.2.4. Airspace. **Surface to 10,000' and a minimum of 1500' AGL over CPNWR, unless on a scheduled MTR.** Supersonic is authorized above 5,000' MSL.

4.12.2.5. Emergency Airfield. Gila Bend AFAF, 032/35 NM from center of area.

4.12.3. Air Combat Maneuvering Instrumentation (ACMI) Range

★4.12.3.1. Airspace. All of the BMGR and SELLS MOA is ACMI compatible airspace.

★4.12.3.2. Scheduling. Luke squadron schedulers will coordinate with ACMI at DSN 896-6509 or (commercial) 856-6509 NLT 24 hours prior for ACMI support. Priorities for ACMI airspace will be 1) D/ ACT, 2) 2v2 Intercepts, 3) ACM, 4) LASDT, 5) BFM, 6) 1v1 Intercepts and 7) A/G sorties.

★4.12.3.3. Communications. ACMI will monitor primary frequency of the working area with the Callsign "Quickdraw". Squadrons may schedule a *Range Training Officer* (RTO) for any mission.

4.12.4. Live Aerial Gunnery

4.12.4.1. Live Aerial Gunnery missions should be conducted IAW applicable directives.

4.12.4.2. Location. Approximately 45 NM WSW of GBAFAF. See Figures 2.1 and 2.2.

★4.12.4.3. Boundaries of Aerial Gunnery Range. The Aerial Gunnery Range lies entirely within the borders of AAHI/ AALOW, with a 2NM buffer on the east/west borders:

N32 40 W113 37 to
N32 40 W113 27 to
N32 25 W113 23 to
N32 25 W113 33 to the beginning.

4.12.4.4. Towing Procedures. Tow aircraft will ensure that targets are not launched over the tactical ranges. A warning radio call will precede target launch. A chase aircraft should monitor target deployment, but is not mandatory. Firing passes will not be made when the target is flying high on the tow ship or in an erratic manner. A target is considered to be flying in an erratic manner if rolling movements occur when the target is in a turn.

★4.12.4.5. Patterns. All patterns described in **AFI 11**-aircraft series, MCR 55-Series publications, training manuals, or other applicable regulations are authorized. It is the responsibility of both the A/A Range Control Officer (A/A RCO) and the tow pilot to ensure that pattern size and orientation do not exceed the prescribed confines of the range, and that they only fire over approved areas. Orient the pattern with the axis of the pattern NNW to SSE. Do not allow firing on the target if the shooter is headed outbound, within 2NM of the borders.

4.12.4.6. Communications. Shooters and tow aircraft will clear on and off the AIR-TO-AIR Range with Range Operations. Flight leads will call on GUARD stating that "R-2301E will be hot with live aerial gunnery for the next XX minutes," prior to any shooting. Radio contact between tow and shooter aircraft is mandatory. The active shooter will acknowledge all calls. It is the tow pilot's responsibility to provide Range Operations with the following information: shooter and tow (primary and spare) call signs; lead shooter's squadron and home base, if other than regular users; when the secondary frequency is being used; or when any target is shot off or dropped on the range.

4.12.4.7. Minimums. Minimum altitudes are according to AFI 11-214, or other applicable regulations. Weather minimums are: at least 1,000' above the highest altitude (perch/observation) to be used, 5 NM visibility, and VFR must be maintained.

4.12.4.7.1. Weather. Pilots may fire on the target above an undercast provided the area is clear of activity, GCI or ACMI is used to provide positive area monitor, and Gila Bend AFAF weather is at least a 4,000' ceiling (for a DART drop). A/A RCOs and flight leads should ensure aircraft radars and INS/ TACAN are also used to clear the area and remain in the shoot box. NOTE: Range security procedures are sufficient for surface activity clearance.

4.12.4.8. DART/AGTS Drops. The primary drop area is 4,000' short and east of the approach end of Runway 35 at Gila Bend AFAF. Proceed to the drop area by crossing the NTAC/ STAC Ranges 1,000' above the scheduled altitude, direct to the GBN 215/25. Avoid overflight of manned ranges within 5NM, or coordinate directly with the RCOs. Contact Gila Bend Tower and descend to 2,500' for the drop. After the drop, confirm with shooter escort or the Tower Controller that the DART/ AGTS and all cables have been successfully released.

4.12.4.8.1. On-Range Release/Drop. When circumstances require target or cable release on range, plan the drop so impact will occur on that portion of the range north of N32 25.00, the CPNWR.

4.12.4.8.2. Other Drops. If above an undercast cloud deck, and the tow aircraft is unable to tow the DART/AGTS to Gila Bend AFAF, attempt to clear the range airspace with GCI radar prior to release of the DART/AGTS on range.

4.12.4.8.3. Arbitrary Drop. Arbitrary target drops on the AIR-TO-AIR Range are prohibited.

4.12.4.9. Safety. Once on the range, the shooter flight lead becomes the Air-to-Air Range Control Officer (A/A RCO). Fouls will be assessed by the A/A RCO or tow pilot. A foul will be called for an unauthorized pass or procedure. For detailed guidance on firing procedures, refer to applicable regulations.

4.12.5. Holding. When required, hold as follows:

4.12.5.1. AA HI. Hold at or above 11,000' on UHF 308.9, in the area.

4.12.5.2. AA LOW. Hold at or below 10,000 on UHF 324.2, in the area.

4.12.5.3. Tow Aircraft. Hold and/or rendezvous north of N32 40', or as coordinated between the flights that are actively firing and the flights that are holding.

4.12.6. Entries. The Air-to-Air Ranges may be entered via any local SID, IFR flight plan, or published low level route terminating within the AIR-TO-AIR airspace. Normal high altitude entry fixes are ARSON (BXK 205/52), approximately over the AZTEC Hills at the NW corner of NTAC or NOLLS (BXK 175/39). Maintain IFR altitude until ARSON or NOLLS, then turn to a southwesterly heading to enter the area. AAHI flights must contact NTAC flights to ensure altitude deconfliction.

4.12.7. Exits. Check out with Range Operations, confirm status of ranges to be overflown, and:

4.12.7.1. IFR Clearance. Contact ABQ Center for an IFR clearance before departing restricted airspace. Exit to the NW of NTAC, over NTAC, or between NTAC and Range 2, between 15,000'-17,000'.

4.12.7.2. Casual Users. Normally use the North Exit, west of NTAC.

4.12.8. Hazards/Conflicts.

4.12.8.1. Aerial Gunnery Range. Aerial Gunnery training is conducted by MCAS Yuma approximately 5 miles to the west of the AIR-TO-AIR Range.

4.12.8.2. NTAC/STAC Users. The NTAC/STAC Ranges are situated to the immediate east and north of the AA LOW Range and directly underneath the eastern portion of the AAHI. Aircraft may be working in NTAC and/or STAC at 24,000' and below. Aircraft departing NTAC/STAC on the VALLY Recovery will be above 10,000'.

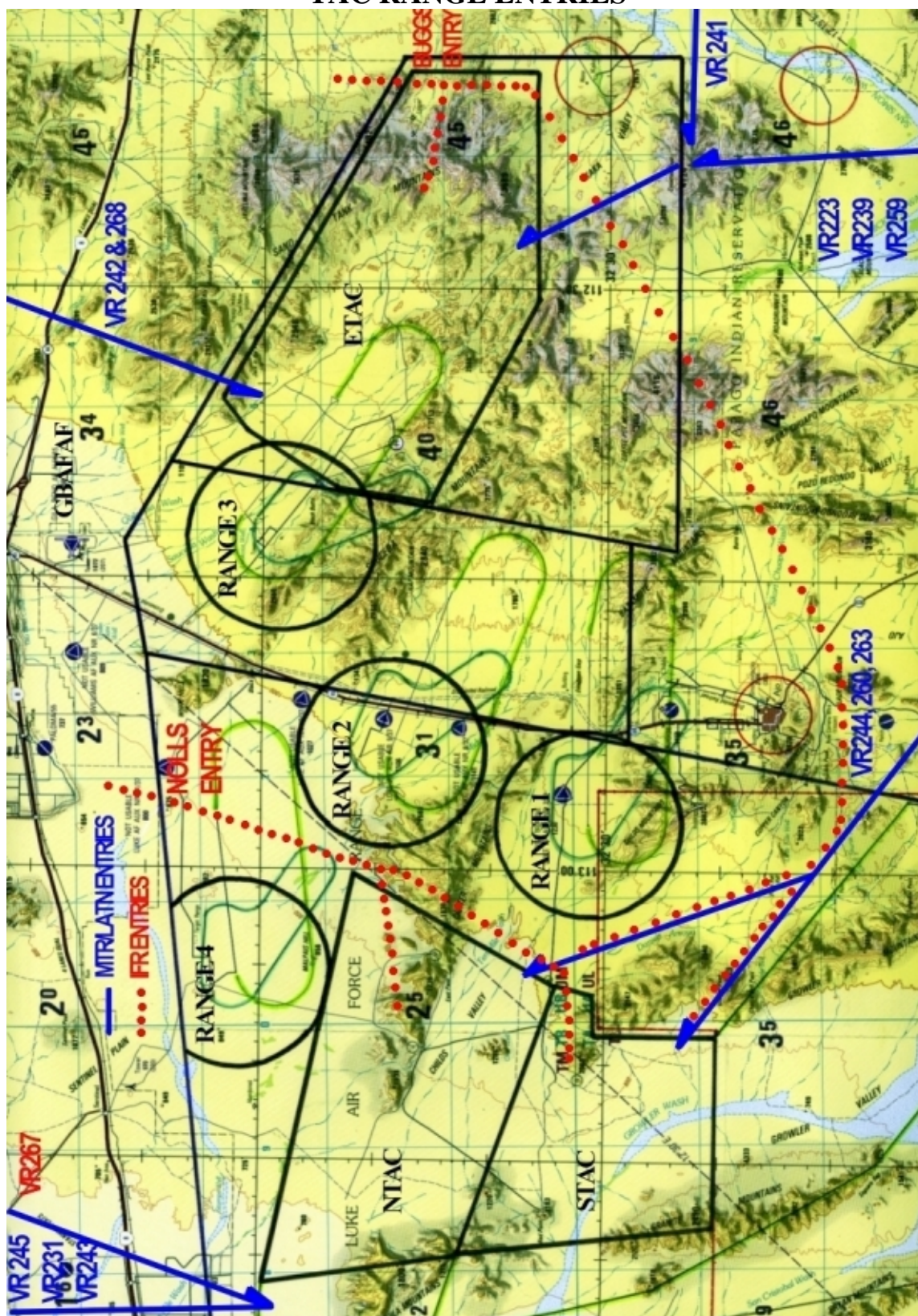
4.12.8.3. Manned Ranges. Three Manned Ranges lie in close proximity to AIR-TO-AIR, all of which normally extend up to 24,000' within 4 NM of the nuclear target.

★4.12.8.4 STOVAL. STOVAL is an abandoned airfield located in the NW corner of AA LOW A. Use of STOVAL for flight operations (cargo/helicopter/UAVs [unmanned aerospace vehicles]) is authorized when properly coordinated. Submit a range request to RMO/ASMS. Complete the Environmental Checklist. All STOVAL Range Requests must be accompanied by a Letter stating your proposed operations will be in strict accordance with all applicable environmental and safety regulations. **DO NOT ASSUME THAT SUBMISSION OF A REQUEST IS AUTHORIZATION TO USE STOVAL.**

4.12.8.4.1. Advisory. When STOVAL is in use, range operations will advise that “STOVAL airfield appears HOT”.

4.12.8.4.2. Restrictions. STOVAL operations are typically restricted to within 3 NM of airfield center and at or below 3,000'. **When STOVAL is HOT, a Range NOTAM will be published with avoidance criteria for AALOW flights.** Range NOTAMs can be found at our website: <http://www.luke.af.mil/rmo/aros/dailynotams.html> .

TAC RANGE ENTRIES



★Figure 4.1

[illegible]

★Figure 4.2

NTAC RANGE IMPACT AREA TARGET MAP

★Figure 4.3

NTAC RANGE AUTHORIZED ORDNANCE

Target #	Name	7.62/20/25/ 30/50 MM TP/TPT	BDU-33 MK-106 LGTR-76	2.75"/5" TP Rockets (1)	Inert GP	BDU- 38
5	Bus		X			X
101	Main Airfield	X	X	X	X	X
101- 33/119	Elevated Scud Launcher/Missile		X			
102	SAM Site	X	X	X	X	X
103	SAM Site	X	X	X	X	
104	SAM Site	X	X	X	X	
105	Field Artillery	X	X	X	X	
105L	IR Panel		X			
106	West Convoy	X	X	X	X	
107	Railroad Yard	X	X	X		
108	SAM Site	X	X	X		
109	East Pass Convoy	X	X	X	X	
110	Aux Airfield	X	X	X	X	
111	SAM Site	X	X	X		
112	Enemy Tank Group (East)	X	X	X		
113	Enemy Tank Regiment (East)	X	X	X		
114	SAM/AAA Site	X	X	X		
119	Enemy Command Post (IR)		X			
120	Enemy Supply Bldg (IR)		X			

(1) White Phosphorous Rockets not authorized on wooden targets

★NTAC Wood Targets:

- All MIGs have wooden wings
- All main-airfield (T101) buildings
- 104, 108, 112, 113, 114, 117 and 118

NTAC RANGE LIVE ORDNANCE TARGETS**Includes Expendable Rocket Launchers and Jettison Suspension Equipment**

Target #/ Name	AGM-65	AGM-114	GUN AMMO	2.75/5" HE Rockets	GP Bombs	TOW
116/HE HILL	Not Authorized	X (2)		X	X	
118/Live Maverick	X (1)	X (3)				

- (1) Firing authorized on headings 330 through 060, or 160 through 190 degrees magnetic.
Using southerly attack headings may require use of Range 2 and/or Range 4 airspace.
- (2) Firing is not authorized on headings 080 through 120.
- (3) Firing is authorized on any attack headings.

★Figure 4.4

NTAC RANGE TARGET DESCRIPTIONS

TGT	NAME	LOCATION	ELEV	DESCRIPTION
101	Main Airfield (Ctr of Runway)	N32 38.168' W113 11.168'	788'	Airfield complex consisting of 2003m x 48m runway/taxiway oriented 10/28. 11 revetments are located on the south side of the runway. Numerous A/C located in revetments on taxiway and runway. Several buildings including control tower, nose dock hangar, and admin buildings are located on the north side of the taxiway. The POL storage area is adjacent to mountain. Three automatic weapon sites dispersed around perimeter.
	Structures are full scale length & width with 6' vertical development.			
102	SAM Site (Radar Van)	N32 38.408' W113 13.099'	766'	Star of David 1/2 mile SW of main airfield.
103	SAM Site (Radar Van)	N32 39.058' W113 13.123'	758'	1 mile NW of main airfield, next to Hill 784.
104	SAM Site	N32 37.362' W113 10.783'	820'	Approximately 3/4 mile SE of main airfield.
105	Field Artillery Battery (Rocket Launcher)	N32 36.850' W113 11.592'	817'	Self propelled field artillery approximately 1-1/2 miles W of HE Hill supporting main attack. Approved MAVERICK TRAINING TARGET.
105L	IR Billboard	N32 37.020' W113 11.400'	810'	Large Billboard, 32' wide, 25' tall, with a 16' x 16' white "door". IR Target only Oriented 015 degrees true. <u>BDU-33/LGTR-76 ONLY.</u>
106	Western Convoy	N32 38.505' W113 09.545' TO N32 39.255' W113 09.875'	820' 810'	23 truck convoy. Terrain rises rapidly NE of target.
107	R/R and Marshalling Yard (Center of Southern Train Section)	N32 37.651' W113 08.238'	899'	Train and numerous box cars on R/R and sidings. <u>WARNING: Use extreme caution when attacking due to rapid rising terrain north of target.</u>
		Some targets not full-scale.		
108	SAM Site (N Launcher)	N32 37.138' W113 07.328'	929'	Four tracked vehicles, 2 miles SE of R/R.
109	East Pass Convoy [ctr of convoy]	N32 37.675' W113 04.145'	969'	Numerous trucks in convoy. <u>CAUTION: Rapid rising terrain E and W of convoy.</u>

Figure 4.5, Page 1 of 2

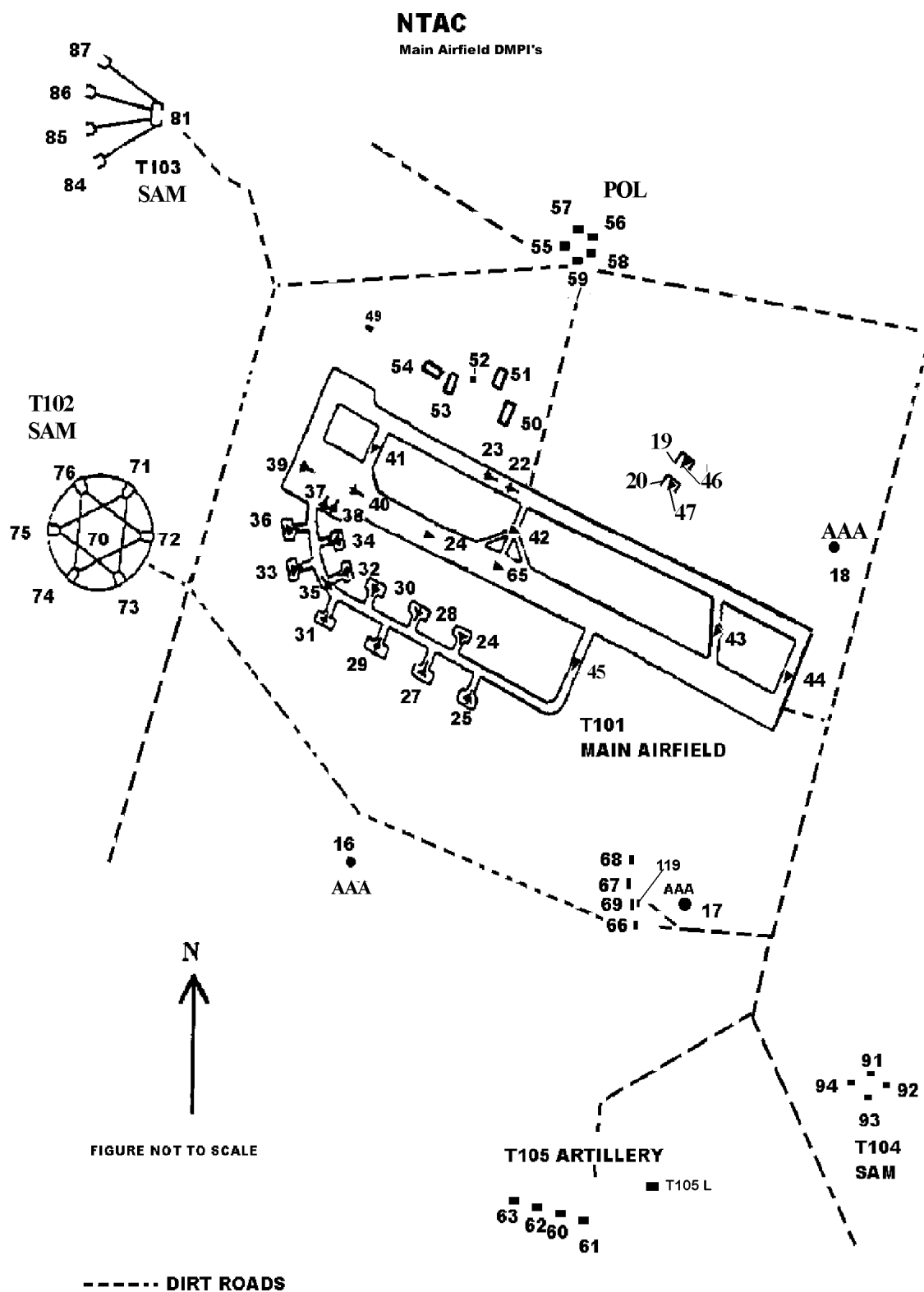
NTAC RANGE TARGET DESCRIPTIONS (Cont'd)

TGT	NAME	LOCATION	ELEV	DESCRIPTION
110	Auxiliary Airfield (Center of Taxiway) (North End) (South End)	N32 38.777' W113 04.407' N32 39.187' W113 04.498' N32 38.322' W113 04.310'	948' 937' 994'	Airfield with 1830m x 46m runway, 4 revetments located on NW end and SE corner of airfield. DEFENSE: SAM Site 1/2 mile SW of airfield. Gun Site 1/4 mile NE. CAUTION: Rapid rising terrain in immediate area.
111	SAM Site (Radar Van)	N32 38.271' W113 04.474'	918'	SAM Site 1/2 mile SW of auxiliary airfield. CAUTION: Rapid rising terrain in immediate area.
112	Eastern Enemy Tank Group	From N32 35.835' W113 05.875' To N32 36.675' W113 05.375'	930' 960'	Approx 20 tank company with AAA and SAM moving up to reinforce in main battle area.
113	Enemy Tank Regiment	N32 34.845' W113 08.739'	894'	Enemy tank Battalion attacking through hills, 2nd tank element along eastern side of Hill 1286 moving up to support the attack.
114	SAM/AAA	N32 34.625' W113 09.440'	912'	ADA supporting main attack.
115	Maverick Training Target	N32 34.758' W113 08.325'	897'	Maverick target consisting of two real M-3 tanks.
116	HE Hill	N32 36.230' W113 09.540'	976'	Small circular hill located 4000m SE of main airfield. NOT TO BE CONFUSED WITH THE 1286' HILL, TGTS 113/114.
117	Friendly Tanks	From N32 34.005' W113 09.544' To N32 34.175' W113 07.544'	880' 920'	Friendly tanks defending FEBA. THIS TARGET NOT AUTHORIZED FOR ORDNANCE DELIVERY.
118	Live Maverick Target (Ctr of tgt array)	N32 34.755' W113 12.545'	800'	Up to 12 plywood tanks for live MAVERICK use ONLY. Six tan and six black (24'L x 6'H x 12'W) Requires both NTAC & STAC Ranges.
119	Enemy Command Post	N32 36.039' W113 09.630'	850'	Enemy Command Post. Lego blocks, passive IR target. <u>BDU-33/LGTR-76 ONLY.</u>
120	Enemy Supply Building	N32 35.978' W113 09.643'	850'	Enemy Supply Bldg. Lego blocks, passive IR target. <u>BDU-33/LGTR-76 ONLY.</u>

Map Ref: NTAC Range Map V7988 Edition 2-NIMA. Scale: 1:50,000. DATUM: WGS 84

Figure 4.5, page 2 of 2

NTAC MAIN AIRFIELD LAYOUT



★Figure 4.6

NTAC TARGET COORDINATES

TGT#	NAME	LATITUDE/LONGITUDE (WGS-84)	ELEV	UTM (WGS-84)
101-	MAIN AFLD		800'	
1- 15		NOT USED		
16	AW S	N32 37.716' W113 12.017'	797'	12STB9358112252
17	AW SE	N32 37.804' W113 11.250'	807'	12STB9478412390
18	AW NE	N32 38.146' W113 11.065'	808'	12STB9508613016
19	Hangar 1 A/C	N32 38.186' W113 11.330'	810'	12STB9467313099
20	Hangar 1 A/C	N32 38.163' W113 11.341'	805'	12STB9465513057
21		NOT USED		
22		N32 38.263' W113 11.814'		12STB9391913257
23		N32 38.272' W113 11.837'		12STB9388413274
24		N32 38.291' W113 12.130'		12STB9342613319
25	A/C Bunker	N32 38.098' W113 12.045'	789'	12STB9355212959
26	A/C Bunker	N32 38.156' W113 12.060'	790'	12STB9353013067
27	A/C Bunker	N32 38.125' W113 12.123'	790'	12STB9343113067
28	A/C Bunker	N32 38.184' W113 12.136'	790'	12STB9341213121
29	A/C Bunker	N32 38.149' W113 12.195'	788'	12STB9331913059
30	A/C Bunker	N32 38.211' W113 12.208'	785'	12STB9330113174
31	A/C Bunker	N32 38.179' W113 12.276'	786'	12STB9319413116
32	A/C Bunker	N32 38.243' W113 12.292'	787'	12STB9317113235
★33	Scud Launcher	N32 38.239' W113 12.363'	783'	12STB93061323
34	A/C Bunker	N32 38.280' W113 12.350'	782'	12STB9308213306
35	A/C	N32 38.223' W113 12.313'	787'	12STB9313713199
36	A/C Bunker	N32 38.302' W113 12.430'	779'	12STB9295713349
37	A/C	N32 38.338' W113 12.397'	781'	12STB9301013414
38	A/C	N32 38.333' W113 12.385'	784'	12STB9302913405
39	A/C	N32 38.372' W113 12.429'	780'	12STB9296113478
40	A/C	N32 38.338' W113 12.320'	783'	12STB9313113412
41-48		NOT USED		
49	Truck	N32 38.515' W113 12.337'	783'	12STB9311113740
50	HQ Bldg	N32 38.423' W113 12.075'	789'	12STB9351713561
51	Admin Bldg	N32 38.468' W113 12.069'	788'	12STB9352913644
52	Tower	N32 38.446' W113 12.157'	785'	12STB9338913606
53	Warehouse	N32 38.445' W113 12.197'	783'	12STB9332813605
54	Warehouse	N32 38.457' W113 12.220'	783'	12STB9329113629
55	POL	N32 38.600' W113 11.680'	806'	12STB9414113875
56	POL	N32 38.634' W113 11.636'	813'	12STB9421113937
57	POL	N32 38.649' W113 11.666'	809'	12STB9416513965
58	POL	N32 38.576' W113 11.664'		12STB9416613831
59	POL	N32 38.562' W113 11.687'		12STB9412913805
65	RWY CTR	N32 38.168' W113 11.168'	788'	12STB9492613060
66	IR BLDG	N32 37.752' W113 11.417'		12STB9452112299
67	IR BLDG	N32 37.801' W113 11.405'		12STB9454112390
68	IR BLDG	N32 37.865' W113 11.432'		12STB9450112509
69	IR Truck	N32 37.784' W113 11.405'		12STB9454112358
★119	Scud Launcher	N32 37.785' W113 11.386'	788'	12STB94571236

Figure 4.7, page 1 of 6

NTAC TARGET COORDINATES, cont.

TGT#	NAME	LATITUDE/LONGITUDE (WGS-84)	ELEV	UTM (WGS-84)
102-	SAM Site		760'	
70	RDR Van	N32 38.408' W113 13.099'	766'	12STB9191513566
71	MSL Bunker	N32 38.466' W113 13.063'	766'	12STB9197413672
72	MSL Bunker	N32 38.406' W113 13.021'	767'	12STB9203713560
73	MSL Bunker	N32 38.353' W113 13.055'	769'	12STB9198213464
74	MSL Bunker	N32 38.358' W113 13.140'	765'	12STB9184913476
75	MSL Bunker	N32 38.410' W113 13.168'	766'	12STB9180813573
76	MSL Bunker	N32 38.468' W113 13.132'	767'	12STB9186613679
77-80		NOT USED		
103-	SAM Site		750'	
81	RDR Van	N32 39.058' W113 13.123'	758	12STB9190314769
82-83		NOT USED		
84	MSL Bunker	N32 38.911' W113 13.180'	755'	12STB9180814499
85	MSL Bunker	N32 38.960' W113 13.161'	752'	12STB9184014589
86	MSL Bunker	N32 39.008' W113 13.143'	756'	12STB9187014677
87	MSL Bunker	N32 39.058' W113 13.123'	758'	12STB9190314769
88-90		NOT USED		
104-	SAM Site		820'	
91	SAM	N32 37.362' W113 10.783'	965'	12STB9549711559
92	SAM	N32 37.327' W113 10.697'	965'	12STB9563111491
93	SAM	N32 37.268' W113 10.740'	938'	12STB9556111383
94	SAM	N32 37.283' W113 10.754'		12STB9554011411
95-100		NOT USED		
105-	Artillery Batty		810'	
60	RKT Launchr	N32 36.850' W113 11.592'	817'	12STB9421310638
61	TANK	N32 36.866' W113 11.667'	813'	12STB9409610670
62	TANK	N32 36.883' W113 11.770'	812'	12STB9393510705
63	TANK	N32 36.895' W113 11.855'	806'	12STB9380310730
64		NOT USED		
105L	IR Billboard	N32 37.020' W113 11.400'		12STB9451910946
106	Western Convoy (N)	N32 38.505' W113 09.545'		12STB9747713631
	(S)	N32 39.255' W113 09.875'		12STB9698915028
	TRUCK	N32 38.761' W113 09.542'	805'	12STB9749114104
	TRUCK	N32 38.766' W113 09.547'	803'	12STB9748314114
	TRUCK	N32 38.778' W113 09.569'	804'	12STB9744914136
	TRUCK	N32 38.801' W113 09.590'	803'	12STB9741714180
	TRUCK	N32 38.822' W113 09.603'	805'	12STB9739814219
	TRUCK	N32 38.853' W113 09.619'	809'	12STB9737414277
	TRUCK	N32 38.880' W113 09.627'	810'	12STB9736214327
	TRUCK	N32 39.234' W113 09.921'	790'	12STB9691614991

Figure 4.7, page 2 of 6

NTAC TARGET COORDINATES, cont.

TGT#	NAME	LATITUDE/LONGITUDE (WGS-84)	ELEV	UTM (WGS-84)
	TRUCK	N32 39.173' W113 09.904'	794'	12STB9694114877
	TRUCK	N32 39.200' W113 09.911'	797'	12STB9693014927
	TRUCK	N32 39.121' W113 09.884'	792'	12STB9697014780
	TRUCK	N32 39.146' W113 09.903'	795'	12STB9694114827
	TRUCK	N32 39.095' W113 09.858'	800'	12STB9700914732
	TRUCK	N32 39.071' W113 09.834'	799'	12STB9704614687
	TRUCK	N32 39.057' W113 09.806'	800'	12STB9708914660
	TRUCK	N32 38.993' W113 09.775'	801'	12STB9713514541
	TRUCK	N32 39.021' W113 09.788'	801'	12STB9711614593
	TRUCK	N32 38.974' W113 09.760'	801'	12STB9715814505
	TRUCK	N32 38.965' W113 09.749'	802'	12STB9717514488
	TRUCK	N32 38.948' W113 09.722'	806'	12STB9721614456
	TRUCK	N32 38.937' W113 09.704'	806'	12STB9724414435
	TRUCK	N32 38.931' W113 09.687'	808'	12STB9727014423
	TRUCK	N32 38.912' W113 09.655'	806'	12STB9732014387
107	RR/Marshalling Yard	N32 37.651' W11308.238'	925'	12STB9948912012
	NW Train	N32 37.894' W113 08.123'	925'	12STB9967712457
	Center Train	N32 37.880' W113 08.113'	925'	12STB9969312431
	SE Train	N32 37.866' W113 08.108'	925'	12STB9970012405
108	SAM Site S Launcher	N32 37.017' W113 07.220'	958'	12SUB0105710808
	N Launcher	N32 37.138' W113 07.328'	929'	12SUB0089211035
	W Launcher	N32 37.043' W113 07.308'	977'	12SUB0092010859
	E Launcher	N32 37.048' W113 07.255'	955'	12SUB0100410866
	Vehicle	N32 37.146' W113 07.339'	918'	12SUB0087611050
	Vehicle	N32 37.054' W113 07.264'	918'	12SUB0098910878
	Vehicle	N32 37.047' W113 07.317'	913'	12SUB0090710867
109	Ctr E Pass Cnvy	N32 37.675' W113 04.145'		12SUB0589011929
	Vehicle	N32 38.035' W113 03.838'	940'	12SUB063812585
	Vehicle	N32 38.070' W113 03.810'	933'	12SUB0642812649
	Vehicle	N32 38.115' W113 03.775'	938'	12SUB0648512731
	Vehicle	N32 38.114' W113 03.741'	937'	12SUB0653712728
	Vehicle	N32 37.998' W113 03.865'	940'	12SUB0633912518
	Vehicle	N32 37.962' W113 03.905'	938'	12SUB0627612452
	Vehicle	N32 37.884' W113 03.971'	944'	12SUB0616912310
	Vehicle	N32 37.923' W113 03.936'	941'	12SUB0622612381
	Vehicle	N32 37.854' W113 03.993'	949'	12SUB0613412255
	Vehicle	N32 37.824' W113 04.039'	953'	12SUB0606112201
	Vehicle	N32 37.768' W113 04.042'	957'	12SUB0605512098
	Vehicle	N32 37.729' W113 04.076'	962'	12SUB0600012027
	Vehicle	N32 37.150' W113 04.800'	1037'	12SUB0484710979
	Vehicle	N32 37.155' W113 04.745'	1040'	12SUB0493310987

Figure 4.7, page 3 of 6

NTAC TARGET COORDINATES, cont.

TGT#	NAME	LATITUDE/LONGITUDE (WGS-84)	ELEV	UTM (WGS-84)
	Vehicle	N32 37.159' W113 04.678'	1034'	12SUB0503810992
	Vehicle	N32 37.161' W113 04.598'	1025'	12SUB0516310993
	Vehicle	N32 37.179' W113 04.555'	1025'	12SUB0523111025
	Vehicle	N32 37.179' W113 04.555'	1025'	12SUB0523111025
	Vehicle	N32 37.202' W113 04.471'	1015'	12SUB0536311065
	Vehicle	N32 37.217' W113 04.403'	1018'	12SUB0547011091
	Vehicle	N32 37.655' W113 04.141'	967'	12SUB0589511892
	Vehicle	N32 37.586' W113 04.195'	969'	12SUB0580911766
	Vehicle	N32 37.524' W113 04.234'	969'	12SUB0574611653
	Vehicle	N32 37.435' W113 04.263'	987'	12SUB0569711489
	Vehicle	N32 37.340' W113 04.287'	991'	12SUB0565611314
	Vehicle	N32 37.259' W113 04.318'	998'	12SUB0560511166
110	Aux Airfield Center Taxiway	N32 38.777' W113 04.407'	948'	12SUB0552013974
	N End	N32 39.187' W113 04.498'	937'	12SUB0539314734
	S End	N32 38.322' W113 04.310'	994'	12SUB0565513130
111	Van	N32 38.271' W113 04.474'	918'	12SUB0539713041
	W Launcher	N32 38.293' W113 04.545'	915'	12SUB0528713083
	E Launcher	N32 38.333' W113 04.432'	915'	12SUB0546513154
	Launcher	N32 38.531' W113 04.475'	913'	12SUB0540513521
112	E Enemy Tank Group	N32 35.835' W113 05.875'		12SUB0311808582
		N32 36.675' W113 05.375'		12SUB0393010119
	Tank	N32 36.342' W113 05.597'	959'	12SUB0357109510
	Tank	N32 36.360' W113 05.579'	958'	12SUB0360009543
	Tank	N32 36.387' W113 05.545'	960'	12SUB0365409592
	Tank	N32 36.426' W113 05.510'	966'	12SUB0371009663
	Tank	N32 36.425' W113 05.485'	965'	12SUB0374909660
	Tank	N32 36.445' W113 05.480'	967'	12SUB0375809697
	Tank	N32 36.649' W113 05.254'	989'	12SUB0411910067
	Tank	N32 36.468' W113 05.461'	969'	12SUB0378809739
	Tank	N32 36.270' W113 05.626'	952'	12SUB0352309378
	Tank	N32 36.175' W113 05.724'	944'	12SUB0336609206
	Tank	N32 36.161' W113 05.745'	947'	12SUB0333309180
	Tank	N32 36.182' W113 05.727'	945'	12SUB0336209219
	Tank	N32 36.147' W113 05.768'	945'	12SUB0329609155
	Tank	N32 36.143' W113 05.797'	947'	12SUB0325109149
	Tank	N32 36.120' W113 05.805'	944'	12SUB0323709106
	Tank	N32 36.104' W113 05.818'	942'	12SUB0321709077
	Tank	N32 36.069' W113 05.837'	940'	12SUB0318609013
	Tank	N32 36.067' W113 05.873'	941'	12SUB0312909011
	Tank	N32 36.053' W113 05.896'	940'	12SUB0309308985
	Tank	N32 36.241' W113 05.652'	953'	12SUB0348109325

Figure 4.7, page 4 of 6

NTAC TARGET COORDINATES, cont.

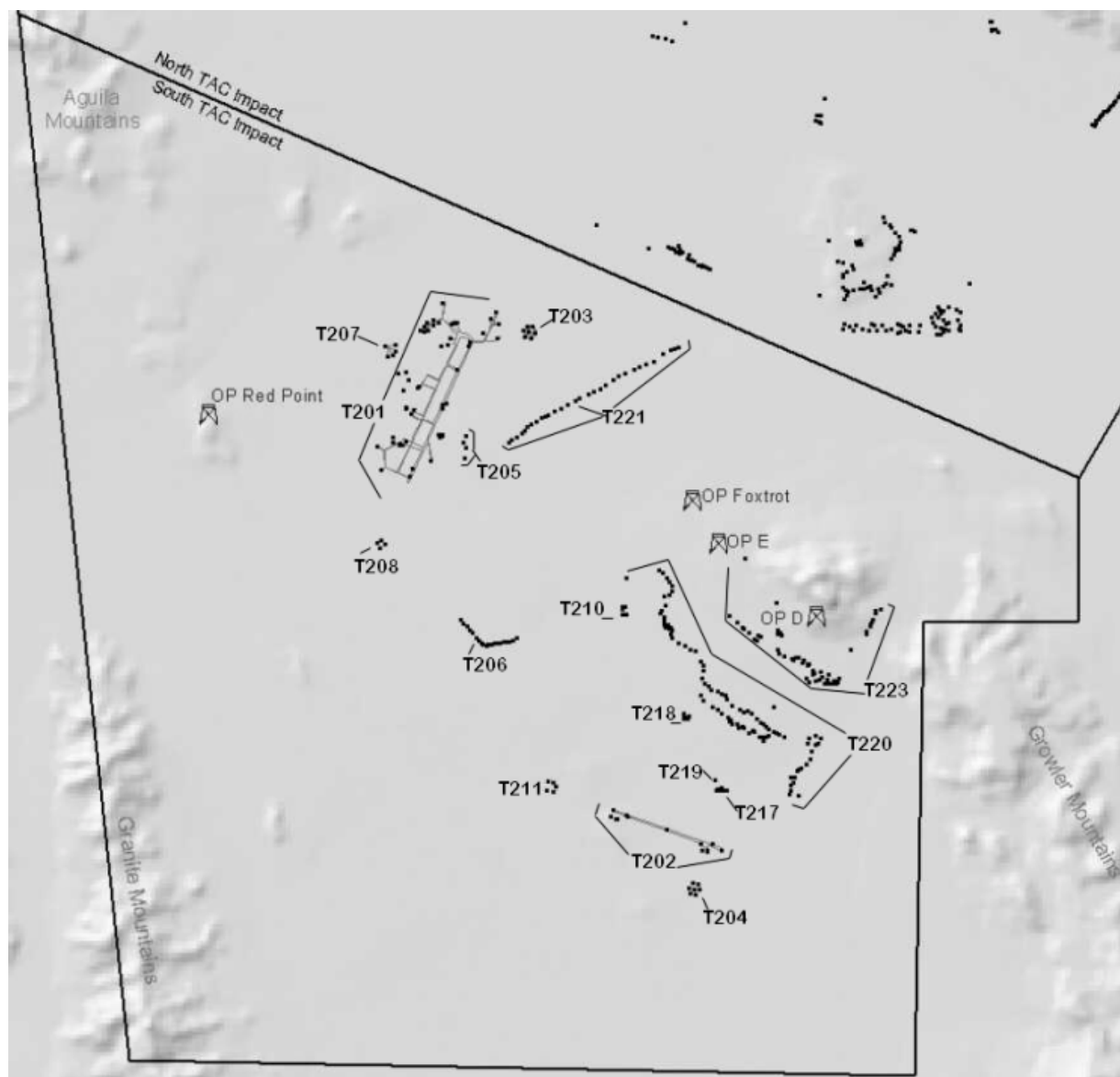
TGT#	NAME	LATITUDE/LONGITUDE (WGS-84)	ELEV	UTM (WGS-84)
	Tank	N32 36.586' W113 05.340'	975'	12SUB0398209953
	Tank	N32 36.520' W113 05.401'	974'	12SUB0388409833
	Tank	N32 36.547' W113 05.396'	973'	12SUB0389309883
	Tank	N32 36.611' W113 05.336'	980'	12SUB0398909999
	Tank	N32 36.647' W113 05.320'	984'	12SUB0401610065
	Tank	N32 36.619' W113 05.265'	985'	12SUB0410010012
	Tank	N32 36.482' W113 05.446'	969'	12SUB0381209764
	Tank	N32 36.590' W113 05.343'	977'	12SUB0397809961
	Tank	N32 36.580' W113 05.363'	978'	12SUB0394609943
	Tank	N32 36.315' W113 05.599'	955'	12SUB0356709460
	Tank	N32 36.004' W113 05.952'	940'	12SUB0300308897
	Tank	N32 36.023' W113 05.943'	938'	12SUB0301808931
	Tank	N32 36.035' W113 05.906'	940'	12SUB0307708953
	Tank	N32 36.004' W113 05.894'	938'	12SUB0309408895
	Tank	N32 35.991' W113 05.923'	935'	12SUB0304808872
	Tank	N32 35.992' W113 05.944'	937'	12SUB0301608874
	Tank	N32 36.216' W113 05.676'	949'	12SUB0347309280
	Tank	N32 36.244' W113 05.657'	954'	12SUB0347309331
	Tank	N32 36.192' W113 05.701'	946'	12SUB0340209236
	Tank	N32 36.202' W113 05.705'	948'	12SUB0339709255
113	Enemy Tank Regiment	N32 34.845' W113 08.739'		12STB9860006842
	Tank	N32 34.063' W113 09.094'	895'	12STB9801505408
	Tank	N32 34.089' W113 09.023'	899'	12STB9812805453
	Tank	N32 34.157' W113 08.956'	907'	12STB9853505577
	Tank	N32 34.110' W113 08.914'	898'	12STB9829905489
	Tank	N32 34.117' W113 08.866'	898'	12STB9837405500
	Tank	N32 34.099' W113 09.238'	909'	12STB9779205479
	Tank	N32 34.067' W113 09.206'	901'	12STB9784005419
	Tank	N32 34.055' W113 09.167'	896'	12STB9790105395
	Tank	N32 34.015' W113 09.179'	895'	12STB9788005322
	Tank	N32 34.586' W113 08.501'	902'	12STB9896306356
	Tank	N32 34.553' W113 08.555'	900'	12STB9887706296
	Tank	N32 34.856' W113 08.695'	898'	12STB9867006861
	Tank	N32 34.474' W113 08.562'	905'	12STB9886306150
	Tank	N32 34.434' W113 08.603'	907'	12STB9879806078
	Tank	N32 34.520' W113 08.541'	902'	12STB9889806235
	Tank	N32 34.620' W113 08.488'	900'	12STB9898506418
	Tank	N32 34.536' W113 08.502'	901'	12STB9896006263
	Tank	N32 34.720' W113 08.550'	900'	12STB9889106605
	Tank	N32 34.779' W113 08.610'	899'	12STB9880006716
	Tank	N32 34.812' W113 08.633'	893'	12STB9876506777
	Tank	N32 34.678' W113 08.512'	899'	12STB9894906526
	Tank	N32 34.892' W113 08.728'	899'	12STB9861906928

Figure 4.7, page 5 of 6

NTAC TARGET COORDINATES, cont.

TGT#	NAME	LATITUDE/LONGITUDE (WGS-84)	ELEV	UTM (WGS-84)
114	SAM/AAA	N32 34.625' W113 09.440'		12STB9749506457
	Tank	N32 34.213' W113 09.241'	968'	12STB9779105690
	Tank	N32 34.242' W113 09.241'	964'	12STB9779205743
	Tank	N32 34.206' W113 09.190'	955'	12STB9787105675
	Tank	N32 34.307' W113 09.101'	933'	12STB9801305859
	Tank	N32 34.391' W113 09.317'	950'	12STB9767906021
	Tank	N32 34.378' W113 09.278'	947'	12STB9774005996
	Tank	N32 34.350' W113 09.130'	928'	12STB9797005939
	Tank	N32 34.376' W113 09.247'	940'	12STB9778805991
	Tank	N32 34.584 W113 09.002'	917'	12STB9817906368
	Tank	N32 34.632' W113 09.028'	914'	12STB9814006457
	Tank	N32 34.592' W113 09.050'	916'	12STB9810406384
	Tank	N32 34.614' W113 09.076'	917'	12STB9806406425
115	Mav Tng Tgt	N32 34.758' W113 08.325'		12STB9924406668
116	HE Hill	N32 36.230' W113 09.540'	976'	12STB9739909427
117	Friendly Tanks	N32 34.005' W113 09.544'		12STB9730905315
		N32 34.175' W113 07.544'		12SUB0044505566
118	Live Maverick Target (Center)	N32 34.388' W113 11.383'	841'	12STB9450906080
	Tank	N32 34.269' W113 11.016'	844'	12STB9501505850
	Tank	N32 34.283' W113 11.062'	844'	12STB9494405877
	Tank	N32 34.299' W113 11.100'	844'	12STB9488505908
	Tank	N32 34.294' W113 11.132'	845'	12STB9483505900
	Tank	N32 34.318' W113 11.129'	845'	12STB9484105944
	Tank	N32 34.311' W113 11.174'	845'	12STB9477005932
	Tank	N32 34.360' W113 11.240'	841'	12STB9466806025
	Tank	N32 34.377' W113 11.287'	839'	12STB9459506058
	Tank	N32 34.425' W113 11.309'	836'	12STB9456306148
	Tank	N32 34.388' W113 11.343'	841'	12STB9450906080
	Tank	N32 34.434' W113 11.436'	838'	12STB9436406168
	Tank	N32 34.458' W113 11.398'	835'	12STB9442506211
	Tank	N32 34.486' W113 11.434'	834'	12STB9436906264
	Tank	N32 34.530' W113 11.445'	835'	12STB9435406346
	Tank	N32 34.468 W113 11.545'	834'	12STB9419506235
	Tank	N32 34.484' W113 11.501'	831'	12STB9426506263
	Tank	N32 34.500' W113 11.851'	833'	12STB9371706304
	Tank	N32 34.547' W113 11.607'	833'	12STB9410106383
119	Enemy CP	N32 36.039' W113 09.630'	850'	12STB9725109076
120	Enemy Supply Building	N32 35.978' W113 09.643'	850'	12STB9722808964

Figure 4.7, page 6 of 6

STAC RANGE IMPACT AREA TARGET MAP**★Figure 4.8**

STAC RANGE AUTHORIZED ORDNANCE

Target #	Name	7.62/20/25/ 30MM & 50CAL TP/TPT	BDU-33 MK-106 LGTR-76	2.75"/ 5" TP Rockets (1)	Inert GP	BDU- 38
201	Main Airfield	X	X	X	X	X
201-71	IR Ammo Bunker		X			
201-72	IR Ammo Bunker		X			
202L	IR Billboard Panel		X			
202	Aux Airfield	X	X	X	X	X
203	SAM Site	X	X	X	X	X
204	SAM Site	X	X	X	X	X
206	Truck Convoy	X	X	X	X	
207	SAM Site	X	X	X	X	
208	SAM Site	X	X	X	X	
210	North Convoy	X	X	X	X	
211	SAM Site	X	X	X	X	
217	SAM Site	X	X	X	X	
218	SAM Site	X	X	X	X	
219	South Artillery	X	X	X	X	
220	Enemy Tanks	X	X	X		
221	Truck Convoy	X	X	X	X	

(1) White Phosphorous Rockets not authorized on wooden targets

★STAC Wood Targets:

- All MIGs have wooden wings
- All main-airfield (T201) buildings
- 208, 210, 211, 217, 218, 220 and 223

STAC RANGE LIVE ORDNANCE TARGETS

Includes Expendable Rocket Launchers and Jettison Suspension Equipment

Target #/ Name	AGM- 65	AGM- 114	GP Bombs	GUN AMMO	2.75"/ 5" HE Rocket	TOW
205/ HE HILL	X (1)	X (2)	X		X	
118/ LIVE Maverick [requires both NTAC & STAC Ranges]	LIVE AGM ONLY (3)	LIVE AGM ONLY (4)				

(1) Firing authorized on headings 015 through 045 degrees magnetic.

(2) Firing not authorized on headings 210 through 300 degrees.

(3) Firing authorized on headings 330 through 060, or 160 through 190 degrees magnetic.
Using southerly attack headings may require use of Range 2 and/ or Range 4 airspace.

(4) Firing authorized on any attack headings.

★Figure 4.9

STAC RANGE TARGET DESCRIPTIONS

TGT #	NAME	LOCATION/(DATUM)	ELEV	DESCRIPTION
201	Main Afld (Ctr of Runway)	N32 32.620' W113 14.592'	741'	Airfield complex and runway [3170m X 60m HDG 030/210] and taxiway. Numerous aircraft in revetments and on runway/taxiway. Several buildings are located on west side of runway. (Structures are full-scale length and width with 6' vertical development - Aircraft are 75% scale).
202	Forward Airfield East End	N32 27.719' W113 10.726'	762'	Airfield with runway 2100m X 50m and taxiway, HDG 090/270. Approximately 12 aircraft are in revetments at each end of field and on runway. [Structures are full-scale length & width with 6' vertical development - Aircraft are 75% scale).
	West End	N32 28.126' W113 12.166'	762'	
202L	IR Billboard	N32 27.767 W113 10.800	762'	<u>BDU-33 Only</u>
203	North SA-2 Site (Radar Van)	N32 33.520' W113 13.411'	783'	Star of David 1200m NE of main airfield.
204	South SA-2 Site (Radar Van)	N32 27.258' W113 11.059'	758'	Star of David located 200m South of Forward Airfield.
205	HE Hill	N32 32.259' W113 14.259'	884'	Small black hill adjacent to TGT 201.
206	Truck Convoy (Center of Convoy)	N32 29.968' W113 13.941'	730'	Re-supply convoy 1500m SW of Hill 937.
207	North SA-3 Site (Radar Van)	N32 33.326' W113 15.324'	737'	Northern SA-3 Site located 300m NW of center of Main Airfield.
208	North SA-6 Site (N Vehicle)	N32 31.066' W113 15.304'	710'	Northern SA-6 Site located 3 km west of Hill 937.
210	North SA-9 Site	N32 30.405' W113 12.095'	767'	SA-9 Site supporting attacking tanks located 1 km west of attacking tanks.
211	South SA-3 Site (Radar Van)	N32 28.320' W113 13.040'	669'	SA-3 Site located 800m SW of Hill 792.
217	South SA-9 Site	N32 28.485' W113 09.765'	817'	SA-9 Site supporting tank convoy.
218	South SA-6 Site	N32 29.235' W113 11.245'	774'	SA-6 Site defending forward airfield & attacking tanks.
219	South Artillery Site	N32 28.405' W113 10.725'	782'	Six gun FA Site, with vehicles, supporting attacking tanks located adjacent to large dry wash.

Figure 4.10, page 1 of 2

STAC RANGE TARGET DESCRIPTIONS (CONT'D)

220	Enemy Tanks	N32 28.925' <u>W113 09.444'</u> N32 29.335' <u>W113 10.044'</u> N32 29.835' <u>W113 11.044'</u> N32 30.755' W113 12.045'	800'	Sixty-five attacking tanks spread along a line approximately 6 km.
221	Truck Convoy	From (Front) N32 32.676' W113 13.715' To (Rear) N32 33.005' W113 12.215'	804'	Supply convoy approximately 3 km long. Located along a dry wash.
223	Friendly Tank Positions	South: N32 30.005' W113 09.044' Center: N32 30.505' W113 10.044' North: N32 31.005' W113 10.464'	840' 950'	Friendly tanks defending high ground west of Growler Mountains. THESE TARGETS ARE NOT AUTHORIZED FOR ANY ORDNANCE!

Map Reference: STAC Range Map V798S Edition 2-NIMA. Scale 1:50,000. DATUM: WGS-84

STAC TOSS TARGETS LAYOUT

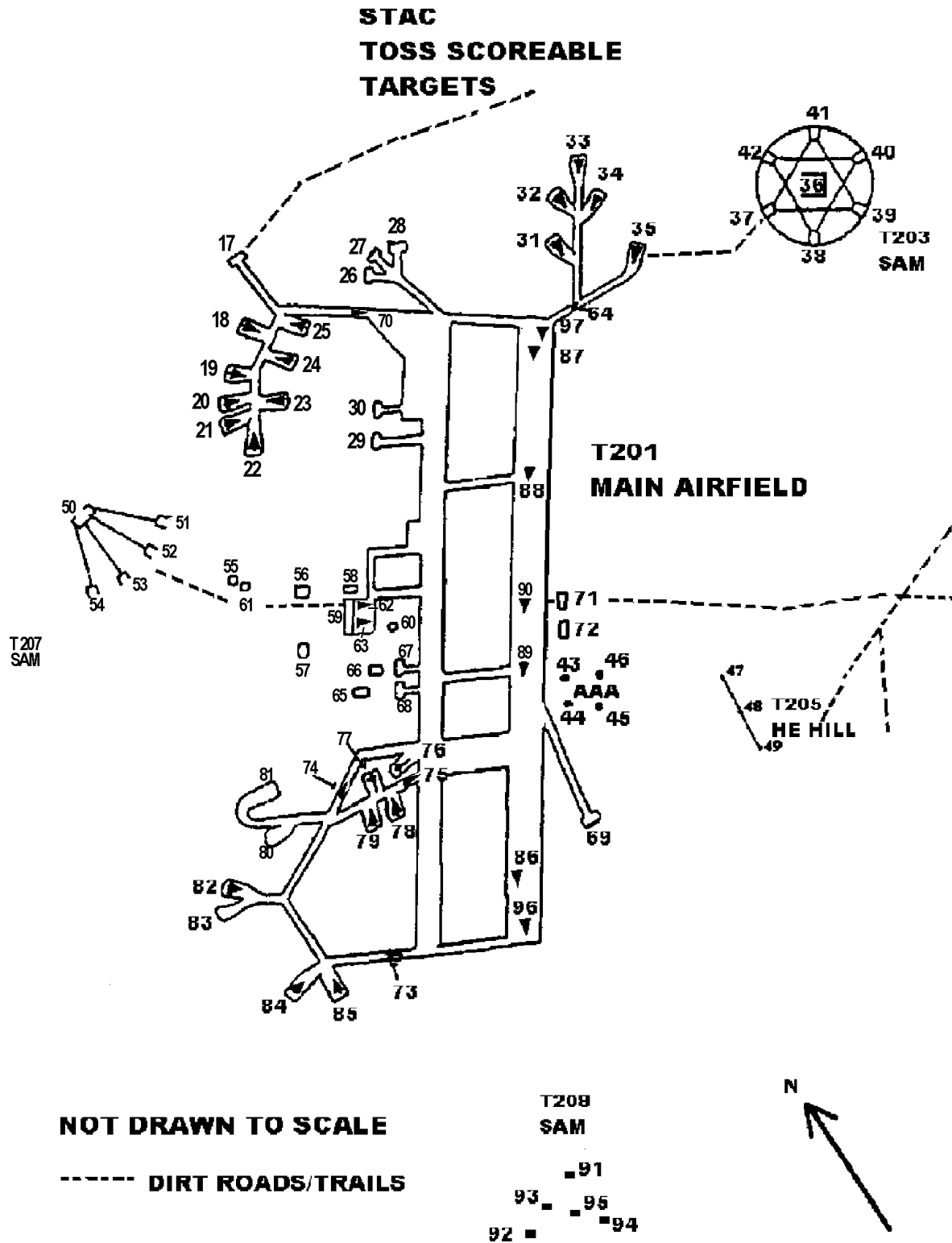


Figure 4.11

STAC TARGET COORDINATES

TOSS TGT	NAME	LATITUDE LONGITUDE (WGS-84)	ELEV	UTM (WGS-84)	TOSS SCORED
201-	MAIN AFLD		740'		
1-16	NOT USED				
17	Ammo Bunker	N32 33.835' W113 14.572'	755'	12STB8943405163	X
18	AC Bunker	N32 33.644' W113 14.698'	749'	12STB8922904815	X
19	AC Bunker	N32 33.608' W113 14.782'	747'	12STB8909604751	X
20	AC Bunker	N32 33.566' W113 14.823'	746'	12STB8903004675	X
21	AC Bunker	N32 33.521' W113 14.863'	745'	12STB8896604593	X
22	AC Bunker	N32 33.502' W113 14.818'	745'	12STB8903604556	X
23	AC Bunker	N32 33.515' W113 14.761'	747'	12STB8912504578	X
24	AC Bunker	N32 33.572' W113 14.697'	748'	12STB8922804681	X
25	AC Bunker	N32 33.587' W113 14.622'		12STB8934604707	X
26	Ammo Bunker	N32 33.605' W113 14.451'	754'	12STB8961404734	X
27	Ammo Bunker	N32 33.611' W113 14.415'	755'	12STB8967104744	X
28	Ammo Bunker	N32 33.606' W113 14.376'		12STB8973204734	X
29	Ammo Bunker	N32 33.364' W113 14.511'	750'	12STB8951004291	X
30	Ammo Bunker	N32 33.441' W113 14.465'	753'	12STB8958604432	X
31	AC Bunker	N32 33.504' W113 14.032'	764'	12STB9026604534	X
32	AC Bunker	N32 33.664' W113 13.930'	768'	12STB9043204826	X
33	AC Bunker	N32 33.739' W113 13.867'	771'	12STB9053304963	X
34	AC Bunker	N32 33.616' W113 13.827'	769'	12STB9059104734	X
35	AC Bunker	N32 33.446' W113 13.830'	767'	12STB9058004420	X
43	AAA Site	N32 33.337' W113 14.590'		12STB8938604244	X
44	AAA Site	N32 32.311' W113 14.587'		12STB8935102347	X
45	AAA Site	N32 32.317' W113 14.537'		12STB8942902357	X
46	AAA Site	N32 32.341' W113 14.541'		12STB8942402401	X
47	HE Hill NW Tip	N32 32.327' W113 14.225'		12STB8991802365	X
48	HE Hill CTR	N32 32.197' W113 14.234'		12STB8989902125	X
49	HE Hill SE Tip	N32 32.072' W113 14.248'		12STB8987201895	X
55	Radar Vans	N32 33.033' W113 15.043'	735'	12STB8866503697	X
56	Building	N32 32.995' W113 14.991'	736'	12STB8874503625	X
57	Building	N32 32.827' W113 15.087'	731'	12STB8858803318	X
58	Building	N32 32.893' W113 14.882'	737'	12STB8891203433	X
59	Hanger 2 AC	N32 32.865' W113 14.894'		12STB8889203381	X
60	Tower	N32 32.727' W113 14.872'		12STB8892103126	X
61	Building	N32 33.021' W113 15.147'	731'	12STB8850203678	X
62	Tower	N32 32.873' W113 14.889'		12STB8890003396	X
63-64	NOT USED				
65	Building	N32 32.631' W113 15.037'	732'	12STB8865902954	X
66	Building	N32 32.647' W113 15.030'	733'	12STB8867102983	X
67	Ammo Bunker	N32 32.608' W113 14.933'	734'	12STB8882102908	X
68	Ammo Bunker	N32 32.556' W113 14.960'	733'	12STB8877702813	X
69	Ammo Bunker	N32 32.043' W113 14.702'		12STB8916001856	X
70	NOT USED				

Figure 4.12, page 1 of 6

STAC TARGET COORDINATES, cont.

TOSS TGT#	NAME	LATITUDE LONGITUDE (WGS-84)	ELEV	UTM (WGS-84)	TOSS SCORED
71	Ammo Bunker (LEGO TGT)	N32 32.700' W113 14.528'		12STB8945903064	X
72	Ammo Bunker (LEGO)	N32 32.459' W113 14.649'		12STB8925902623	X
73-75	NOT USED				
76	AC Bunker	N32 32.254' W113 15.035'	727'	12STB8864702257	X
78	AC Bunker	N32 32.206' W113 15.072'	725'	12STB8858802169	X
79	AC Bunker	N32 32.207' W113 15.119'	725'	12STB8851402173	X
80	Empty Bunker	N32 32.241' W113 15.202'	723'	12STB8838502238	X
81	Empty Bunker	N32 32.300' W113 15.207'	723'	12STB8837902347	X
82	AC Bunker	N32 32.196' W113 15.407'	719'	12STB8806202162	X
83	Empty Bunker	N32 32.174' W113 15.420'	718'	12STB8804202122	X
84	AC Bunker	N32 31.926' W113 15.354'	717'	12STB8813501661	X
85	AC Bunker	N32 31.934' W113 15.310'	715'	12STB8820401674	X
86	Aircraft	N32 31.946' W113 14.929'	725'	12STB8880101684	X
87	Aircraft	N32 33.390' W113 14.187'		12STB9001904328	X
88	Intersection	N32 33.072' W113 14.363'	752'	12STB8973103746	X
89	Intersection	N32 32.456' W113 14.675'	738'	12STB8921902618	X
90	Runway Center	N32 32.620' W113 14.592'	741'	12STB8935502919	X
96	Aircraft	N32 31.856' W113 14.971'	728'	12STB8873201519	X
97	Aircraft	N32 33.386' W113 14.202''	758'	12STB8999504321	X
98- 100	NOT USED				
202	Forward Airfield SE End	N 32 27.719' W113 10.726'	762'	12STA9522293735	
	NW End	N32 28.126' W113 12.166'	762'	12STA9298194534	
	Revetment	N32 27.688' W113 10.890'	769'	12STA9496393683	
	Runway Center	N32 27.923' W113 11.446'	762'	12STA9410294135	
	Aircraft	N32 28.056' W113 12.181'	736'	12STA9295594405	
	Aircraft	N32 28.030' W113 12.118'	738'	12STA9305294355	
	Aircraft	N32 28.024' W113 12.098'	738'	12STA9308394343	
	Aircraft	N32 28.063' W113 11.966'	742'	12STA9329294411	
	Aircraft	N32 28.079' W113 11.982'	742'	12STA9326894441	
	Aircraft	N32 27.766' W113 10.989'	765'	12STA9481293891	
	Aircraft	N32 27.701' W113 10.977'	763'	12STA9482894010	
	Aircraft	N32 27.686' W113 10.889'	769'	12STA9496593680	
203-	SAM Site		790'		
36	Radar Vans	N32 33.520' W113 13.411'	783'	12STB9123804543	X
37	Missile Bunker	N32 33.474' W113 13.454'	779'	12STB9116904459	X
38	Missile Bunker	N32 33.467' W113 13.384'	782'	12STB9127904444	X
39	Missile Bunker	N32 33.515' W113 13.341'	781'	12STB9134804532	X

Figure 4.12, Page 2 of 6

STAC TARGET COORDINATES, cont.

TOSS TGT#	NAME	LATITUDE LONGITUDE (WGS-84)	ELEV	UTM (WGS-84)	TOSS SCORED
40	Missile Bunker	N32 33.577' W113 13.374'	784'	12STB9129904647	X
41	Missile Bunker	N32 33.583' W113 13.440'	785'	12STB9119604660	X
42	Missile Bunker	N32 33.531' W113 13.488'	776'	12STB9108504545	X
204	SAM Site (Radar Van)	N32 27.258 W113 11.059	758'	12STA9468292894	
	Vehicle	N32 27.245' W113 11.071'	759'	12STA9466392870	
	Launcher	N32 27.305' W113 11.012'	761'	12STA9475892980	
	Launcher	N32 27.247' W113 10.986'	765'	12STA9479792871	
	Launcher	N32 27.190' W113 11.030'	760'	12STA9472692767	
	Launcher	N32 27.209' W113 11.104'	764'	12STA9461092805	
	Launcher	N32 27.270' W113 11.131'	756'	12STA9457092919	
	Launcher	N32 27.320' W113 11.078'	764'	12STA9465593009	
205	HE Hill	N32 32.259' W113 14.259'	884'	12STB8986302240	
206	Truck Convoy (Ctr of Convoy)	N32 29.968' W113 13.941'	730'	12STA9027297996	
207-	SAM Site		710'		
50	Radar Van	N32 33.326' W113 15.324'	737'	12STB8823604248	X
51	Missile	N32 33.346' W113 15.195'	733'	12STB8844004280	X
52	Missile	N32 33.275' W113 15.195'	736'	12STB8843704149	X
53	Missile	N32 33.231' W113 15.233'	736'	12STB8837604069	X
54	Missile	N32 33.213' W113 15.297'	736'	12STB8827504038	X
208-	SAM Site		710'		
91	SAM Tank	N32 31.066' W113 15.304'		12STB8817900070	X
92	SAM Tank	N32 31.062' W113 15.325'	715'	12STB8814600063	X
93	SAM Tank	N32 31.112' W113 15.308'	714'	12STB8817500155	X
94	SAM Tank	N32 31.078' W113 15.270'	717'	12STB8823300091	X
210	SAM Site	N32 30.405' W113 12.095'		12STA9317998744	
	Vehicle	N32 30.433' W113 12.052'	771'	12STA9324898794	
	Vehicle	N32 30.348' W113 12.028'	769'	12STA9328298636	
	Vehicle	N32 30.431' W113 12.098'	770'	12STA9317598792	
	Vehicle	N32 30.351' W113 12.087'	768'	12STA9319098643	
211	SAM Site (Radar Van)	N32 28.320' W113 13.040'	669'	12STA9161994921	

Figure 4.12, Page 3 of 6

STAC TARGET COORDINATES, cont.

TOSS TGT#	NAME	LATITUDE LONGITUDE (WGS-84)	ELEV	UTM (WGS-84)	TOSS SCORED
217	SAM Site	N32 28.485' W113 09.765'		12STA9675695512	
	Vehicle	N32 28.699' W113 09.601'	830'	12STA9702195511	
	Vehicle	N32 29.023' W113 09.477'	835'	12STA9722796105	
	Vehicle	N32 28.847' W113 09.530'	833'	12STA9713895782	
	Vehicle	N32 28.760' W113 09.544'	833'	12STA9711395622	
	Vehicle	N32 28.338' W113 09.691'	824'	12STA9686794846	
	Vehicle	N32 28.651' W113 09.660'	828'	12STA9692695424	
	Vehicle	N32 28.997' W113 09.416'	839'	12STA9732296055	
	Vehicle	N32 28.614' W113 09.704'	825'	12STA9685695357	
	Vehicle	N32 28.549' W113 09.742'	822'	12STA9679495238	
	Vehicle	N32 28.985' W113 09.569'	831'	12STA9708296038	
	Vehicle	N32 28.929' W113 09.574'	831'	12STA9707295935	
	Vehicle	N32 28.916' W113 09.483'	836'	12STA9721495908	
	Vehicle	N32 28.539' W113 09.803'	819'	12STA9669895221	
	Vehicle	N32 28.460' W113 09.801'	818'	12STA9669995075	
	Vehicle	N32 28.390' W113 09.802'	818'	12STA9669594946	
	Vehicle	N32 28.362' W113 09.811'	817'	12STA9667994895	
218	SAM Site	N32 29.235' W113 11.245'		12STA9446696554	
	Vehicle	N32 29.208' W113 11.172'	779'	12STA9457996502	
	Vehicle	N32 29.199' W113 11.194'	778'	12STA9454596486	
	Vehicle	N32 29.188' W113 11.232'	775'	12STA9448596466	
	Vehicle	N32 29.209' W113 11.237'	775'	12STA9447896505	
219	South Artillery Site	N32 28.405' W113 10.725'		12STA9524995003	
220	Enemy Tanks	N32 28.925' W113 09.444'		12STA9727695923	
	Tank	N32 29.335' W113 10.044'		12STA9635196700	
	Tank	N32 29.835' W113 11.044'		12STA9480497656	
	Tank	N32 30.755' W113 12.045'			
	Tank	N32 28.993' W113 09.917'	824'	12STA9653796064	
	Tank	N32 29.030' W113 09.970'	823'	12STA9645596134	
	Tank	N32 29.037' W113 10.007'	821'	12STA9639896148	
	Tank	N32 29.054' W113 10.052'	820'	12STA9632896181	
	Tank	N32 29.085' W113 10.100'	820'	12STA9625496240	
	Tank	N32 29.108' W113 10.139'	818'	12STA9619396284	
	Tank	N32 29.145' W113 10.183'	818'	12STA9612696353	
	Tank	N3229.160 W113 10.220'	818'	12STA9606896382	
	Tank	N32 29.200' W113 10.265'	816'	12STA9599996458	
	Tank	N32 28.996' W113 10.131'	815'	12STA9620296076	
	Tank	N32 29.000' W113 10.186'	812'	12STA9611696086	

Figure 4.12, Page 4 of 6

STAC TARGET COORDINATES, cont.

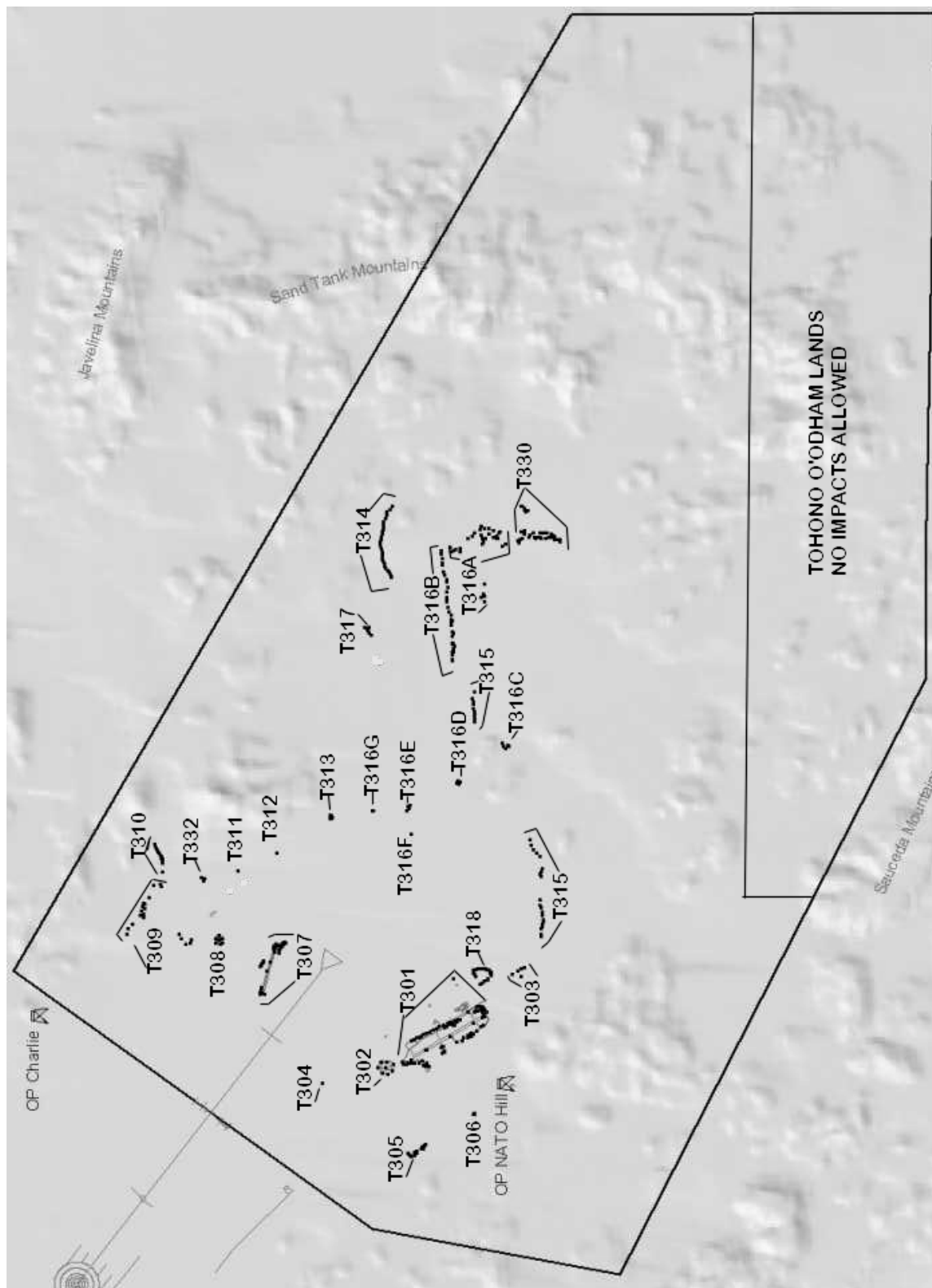
TOSS TGT#	NAME	LATITUDE LONGITUDE (WGS-84)	ELEV	UTM (WGS-84)	TOSS SCORED
	Tank	N32 28.949' W113 10.176'	812'	12STA9613095991	
	Tank	N32 29.003' W113 10.265'	809'	12STA9599296094	
	Tank	N32 29.287' W113 10.432'	811'	12STA9574196624	
	Tank	N32 29.452' W113 10.684'	803'	12STA9535396937	
	Tank	N32 29.467' W113 10.753'	800'	12STA9524596967	
	Tank	N32 29.501' W113 10.802'	799'	12STA9517097031	
	Tank	N32 29.509' W113 10.880'	796'	12STA9504897048	
	Tank	N32 29.557' W113 10.923'	796'	12STA9498397139	
	Tank	N32 29.591' W113 10.974'	795'	12STA9490497203	
	Tank	N32 29.433' W113 11.022'	789'	12STA9482396912	
	Tank	N32 29.392' W113 10.987'	789'	12STA9487696836	
	Tank	N32 29.329' W113 10.856'	794'	12STA9507996715	
	Tank	N32 29.285' W113 10.772'	796'	12STA9520996631	
	Tank	N32 29.247' W113 10.744'	796'	12STA9525196560	
	Tank	N32 29.207' W113 10.661'	798'	12STA9537996483	
	Tank	N32 29.647' W113 11.005'	795'	12STA9485897307	
	Tank	N32 29.740' W113 10.995'	798'	12STA9487697479	
	Tank	N32 29.783' W113 10.998'	800'	12STA9487497559	
	Tank	N32 29.829' W113 11.039'	800'	12STA9481197645	
	Tank	N32 29.943' W113 11.104'	801'	12STA9471497858	
	Tank	N32 29.966' W113 11.175'	799'	12STA9460497902	
	Tank	N32 29.997' W113 11.246'	795'	12STA9449397962	
	Tank	N32 30.031' W113 11.335'	791'	12STA9435598028	
	Tank	N32 30.092' W113 11.411'	788'	12STA9423898143	
	Tank	N32 30.125' W113 11.425'	787'	12STA9421898204	
	Tank	N32 30.205' W113 11.413'	790'	12STA9453998352	
	Tank	N32 29.058' W113 10.306'	809'	12STA9593096197	
	Tank	N32 29.038' W113 10.362'	805'	12STA9584296161	
	Tank	N32 29.112' W113 10.463'	804'	12STA9568696302	
	Tank	N32 29.091' W113 10.505'	802'	12STA9562096264	
	Tank	N32 29.140' W113 10.606'	797'	12STA9546396358	
	Tank	N32 29.175' W113 10.610'	798'	12STA9545996423	
	Tank	N32 29.258' W113 10.350'	814'	12STA9586996568	
	Tank	N32 29.283' W113 10.398'	812'	12STA9579596615	
221	Truck Convoy (Front)	N32 32.676' W113 13.715'		12STB9069102993	
	(Rear)	N32 33.005' W113 12.215'		12STB9309103552	
	Center	N32 32.865' W113 12.531'	829'	12STB9259103304	
	End	N32 33.343' W113 11.521'	829'	12STB9419004155	

Figure 4.12, Page 5 of 6

STAC TARGET COORDINATES, cont.

TOSS TGT	NAME	LATITUDE LONGITUDE (WGS-84)	ELEV	UTM (WGS-84)	TOSS SCORED
223	Friendly Tank Positions (South)	N32 30.005' W113 09.044'		12STA9794297907	
	(Center)	N32 30.505' W113 10.044'		12STA9639598862	
	(North)	N32 31.005' W113 10.464'		12STA9575699800	
	Tank	N32 30.581' W113 11.470'	799'	12STA9416499049	
	Tank	N32 30.559' W113 11.527'	795'	12STA9407599010	
	Tank	N32 30.454' W113 11.523'	793'	12STA9407798815	
	Tank	N32 30.403' W113 11.568'	789'	12STA9400598723	
	Tank	N32-30.359' W113-11.577'	787'	12STA9398898642	
	Tank	N32 30.202' W113 11.441'	788'	12STA9419698347	
	Tank	N32 30.618' W113 11.437'	802'	12STA9421899116	
	Tank	N32 30.232' W113 11.478'	788'	12STA9413998404	
	Tank	N32 30.239' W113 11.532'	786'	12STA9405498419	
	Tank	N32 30.884' W113 11.661'	794'	12STA9387799615	
	Tank	N32 30.670' W113 11.430'	803'	12STA9423099212	
	Tank	N32 30.857' W113 11.606'	796'	12STA9396299563	
	Tank	N32 30.823' W113 11.565'	795'	12STA9402599499	

Figure 4.12, page 6 of 6

ETAC RANGE IMPACT AREA TARGET MAP

★Figure 4.13

ETAC RANGE AUTHORIZED ORDNANCE

Target #	Name	7.62/20/25/ 30MM & 50CAL TP/TPT	BDU-33 MK-106 LGTR-76	2.75"/ 5" TP Rockets (1)	Inert GP	BDU- 38
301A	Main Airfield	X	X	X	X	X
B	S. Airfield Revetment	X	X	X	X	X
C	N. Airfield Revetment	X	X	X	X	X
D	Aircraft Hangars	X	X	X	X	X
E	Flightline Buildings	X	X	X	X	X
F	Barracks Storage	X	X	X	X	X
G	(IR) Aircraft		X			
H	(IR) Aircraft		X			
I	(IR) Building		X			
302	SAM Site	X	X	X	X	X
303	SAM/AAA Site	X	X	X	X	X
304	ICBM Site	X	X	X	X	X
305	Railroad Yards/Storage	X	X	X	X	X
306	Bridge	X	X	X	X	X
307A	Forward Airfield	X	X	X	X	X
B	SAM/AAA Site	X	X	X	X	X
C	POL Storage	X	X	X	X	X
308	GCI/SAM Site	X	X	X		
309 (2)	West Tank Group	X	X	X	X	
310	North Convoy	X	X	X	X	X
312	Command Post	X	X	X	X	X
313	West Artillery	X	X	X	X	X
314	East Convoy	X	X	X	X	X
315	South Convoy	X	X	X	X	X
316A	Attacking Tanks		X	X		X
B	Supporting Tanks		X	X	X	X
C	SAM Site	X	X	X	X	X
D	SAM Site	X	X	X	X	X
E	SAM Site	X	X	X		X
F	SAM Site	X	X	X		X
G	Tank Intersection	X	X	X		X
H	East Artillery	X	X	X		X

(1) White Phosphorous Rockets not authorized on wooden targets

★ETAC Wood Targets:

- All MIGs have wooden wings
- All main-airfield (T301) buildings
- 306, 316 A-F, 317, 318, and 330

(2) Do not strafe Target 309 from 210 through 330 degrees, if Range 3 is Hot.

ETAC RANGE LIVE ORDNANCE TARGETS**Includes Expendable Rocket Launchers and Jettison Suspension Equipment**

Target #/ Name	AGM-65	AGM-114	GUN AMMO	2.75/5" HE Rockets	GP Bombs	TOW
311/ HE HILL		X (1)		X	X	X
318/ Live Maverick	X (2)	X (3)				

- (1) Firing authorized on a 090 degree magnetic heading only.
- (2) Firing authorized on headings 075 through 105 degrees; flights will need Range 3 airspace. F-16s will require Range 2 airspace for maneuvering.
- (3) Firing authorized on headings 010 through 170 degrees only.

ETAC RANGE TARGET DESCRIPTIONS

TGT #	NAME	LOCATION	ELEV	DESCRIPTION
301	ETAC Airfield (Center of Runway)	N32 40.142' W112 37.044'	1560' - 1580'	Airfield Complex with runway, 259m X 61m, oriented 33/15. Revetted aircraft are located about the field. Buildings are located on the east taxiway with storage and barrack areas east of the main airfield complex.
[Structures are full-scale--Length & Width with 6' vertical development. Aircraft are 75% scale.]				
301G	Aircraft	N32 40.720' W112 37.510'	1290'	
301H	Aircraft	N32 40.760' W112 37.570'	1290'	
301I	Lego Building	N32 40.217' W112 36.903'	1601'	Lego Building (IR). <u>BDU-33/MK-106/Navy equivalent ONLY on this target.</u>
302	SAM Site (Radar Van)	N32 41.060' W112 37.675'	1522'	SAM missile site with revetted missiles and associated radar equipment located NE of the main airfield complex.
303	SAM/AAA Site (Radar Van)	N32 39.067' W112 36.004'	1671'	SAM missile site with revetted missiles, associated radar equipment, and AAA units located SE of the main airfield complex.
304	ICBM/SCUD (Center of ICBM Revetment)	N32 42.053' W112 37.945'	1480'	Covered missile silo with one main building on the south side. Site located at north end of a dirt road, oriented N/S. B-52 tip tank is mounted next to a fire truck.
305	RR Yard/Storage Area (NW)	N32 40.635' W112 39.149'	1518'	RR Yard with four 76m X 305m warehouse storage area and associated AAA defense. Yard contains numerous pieces of rolling stock.
306	Bridge (Center)	N32 39.740' W112 38.463'	1634'	Single-span bridge, 18m X 4m, crossing a wash.
307A	Forward Airfield (Ctr of Runway)	N32 42.871' W112 35.906'	1550'	A forward airfield, 1982m X 46m dirt strip, oriented E/W with support buildings and vehicles.
307B	SAM/AAA Site	N32 42.705' W112 35.498'	1573'	
307C	POL - Storage Tank(s)	N32 43.002' W112 35.885'	1534'	
[Structures are full-scale length & width with 6' vertical development -- Aircraft are 75% scale.]				

Figure 4.15, page 1 of 3

ETAC RANGE TARGET DESCRIPTIONS, cont'd

308	GCI/SAM Site (Radar Van)	N32 43.646' W112 35.413'	1526'	Enemy GCI radar site and SA-2 site with revetted missiles and support radar.
309	West Tank Group (Salvaged Tanks)	N32 44.648' W112 34.459'	1534'	A CAS complex with numerous tanks and APCs randomly spaced on the NE side of a NW/SE road leading from the center of the range to Gila Bend. NO STRAFING FROM 210 THROUGH 330 DEGREES WHEN RANGE 3 IS HOT.
310	North Convoy (center of Convoy) (Salvaged Trucks)	N32 44.542' W112 33.979'	1627'	A truck convoy located along a dry wash running WSW from Jack-in-the-Pulpit Peak.
311	HE Hill	N32 43.305' W112 34.364'	1720'	HE ordnance target. A small hill marked with white triangular arrows located 1830 m east of Target 307.
312	Command Post	N32 42.817' W112 33.816'	1684'	Enemy command center containing a van trailer with antenna.
313	West Artillery	N32 41.985' W112 33.164'	1755'	Randomly placed vehicle towed artillery pieces serving as heavy artillery for the forward battle area (TGT 316).
314	East Convoy (Center of Convoy) (Salvaged Trucks)	N32 41.225' W112 28.729'	2040'	Truck convoy intermittently grouped along 8 miles of road running east to the forward
315	South Convoy (Salvage Trucks)	West Vehicle N32 38.755' W112 35.044' Center Vehicle N32 38.875' W112 33.794' East Vehicle N32 39.835' W112 30.914'	1715' 1770' 1880'	Truck convoy intermittently grouped along 8 miles of road running east to the forward battle area. Strafing on the wood tanks on easternmost segment of this route is NOT authorized.
316A 316B 316C 316D 316E 316F	Attacking Tanks Support Tanks SAM Site SAM Site (N) SAM Site SAM Site	AREA BOUNDED BY N32 41.500 (N) N32 38.000(S) W112 33.500(W) W112 28.500(E)	1760' (W) 2080' (E)	Forward battle area with a N/S FEBA line on the eastern part of the area. Enemy defenses on the west include: four separate mobile SAM units, artillery, APCs, AAA units, tanks on the FEBA, support tanks, and rear guard tanks. Friendly tank units on the east side of the FEBA are NOT authorized targets.
316G 316H	Tank Intersection East Artillery	N32 41.343 W112 33.047		

Figure 4.15, page 2 of 3

ETAC RANGE TARGET DESCRIPTIONS, cont'd

317	Maverick Training Target	N32 41.476' W112 29.791'	1971'	Six plywood tanks NOT AUTHORIZED for strafe or ordnance drops.
318	Live Maverick Target (Center of target)	N32 40.085' W112 36.044'	1630'	Up to twelve plywood tanks for live MAVERICK use. (22'L X 6'H X 12''W) Four tan, four black, and four olive drab.
330	Friendly Tanks	N32 40.255' W112 27.543'	2120'	Friendly tank line running south to 32 38.20 N 112 37.20 W
331	Not Used			Watering Wells for wildlife
332	Comm Hill	N32 43.925' W112 34.294'	1720'	Small hill located 1525m north of HE Hill
333	Airfield Ops	N32 40.205' W112 36.894'	1320'	Enemy airfield operations building, located W corner of airfield (passive IR target). BDU-33/LGTR-76 ONLY.

Map Reference: East Tactical Range Map V798S Edition 2-NIMA. Scale 1:50,000. DATUM: WGS-84.

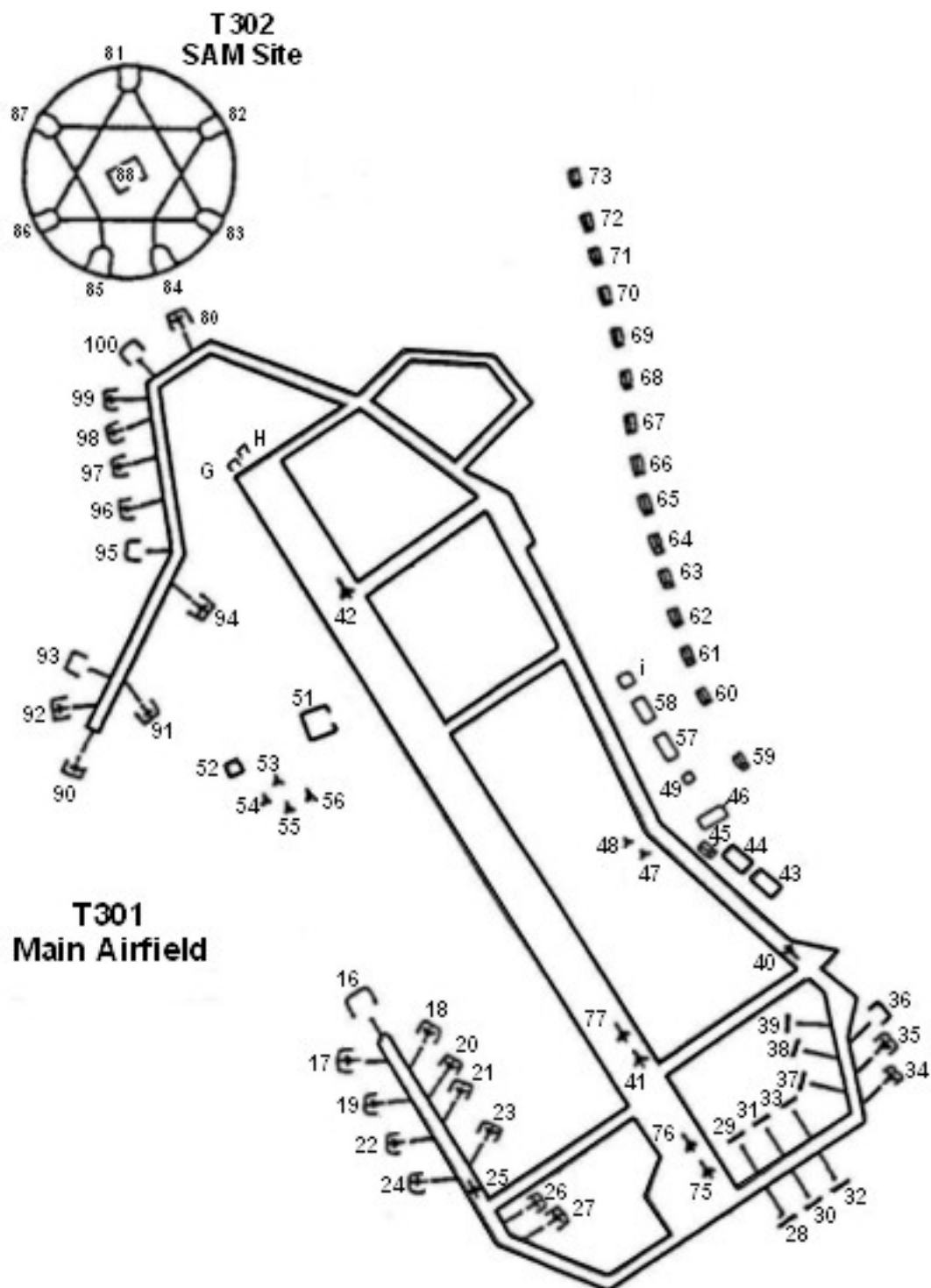
ETAC MAIN AIRFIELD LAYOUT

Figure 4.16

ETAC TARGET COORDINATES

TGT#	NAME	LATITUDE/LONGITUDE (WGS-84)	ELEV	UTM (WGS-84)
301	Main Airfield (Ctr)	N32 40.134' W112 37.076'	1587'	12SUB4828915739
1 - 15	NOT USED			
16	Empty Bunker	N32 40.022' W112 37.173'	1595'	12SUB4813415534
17	A/C Bunker	N32 39.947' W112 37.156'	1595'	12SUB4815915395
18	“	N32 39.927' W112 37.086'	1595'	12SUB4826815356
19	“	N32 39.866' W112 37.095'	1595'	12SUB2010094642
20	“	N32 39.866' W112 37.044'	1600'	12SUB4833215242
21	“	N32 39.836' W112 37.033'	1600'	12SUB4834815187
22	“	N32 39.813' W112 37.063'	1602'	12SUB4830015145
23	“	N32 39.806' W112 37.000'	1605'	12SUB4839915131
24	“	N32 39.781' W112 37.031'	1605'	12SUB4835015085
25	A/C Taxiway	N32 39.725' W112 36.968'		12SUB4844714980
26	“	N32 39.659' W112 36.885'	1615'	12SUB4857514856
27	“	N32 39.635' W112 36.868'		12SUB4860014812
28	Ammo Bunker	N32 39.592' W112 36.620'	1625'	12SUB4898614726
29	“	N32 39.642' W112 36.656'	1620'	12SUB4893214819
30	“	N32 39.611' W112 36.579'	1625'	12SUB4905114760
31	“	N32 39.659' W112 36.623'	1620'	12SUB4898414850
32	“	N32 39.637' W112 36.545'	1625'	12SUB4910514807
33	“	N32 39.674' W112 36.591'	1620'	12SUB4903414877
34	A/C Bunker	N32 39.676' W112 36.527'	1625'	12SUB4913414879
35	“	N32 39.701' W112 36.532'	1625'	12SUB4912714926
36	Empty Bunker	N32 39.731' W112 36.535'	1620'	12SUB4912314981
37	Ammo Bunker	N32 39.721' W112 36.606'	1620'	12SUB4901214964
38	“	N32 39.748' W112 36.613'	1620'	12SUB4920215014
39	“	N32 39.775' W112 36.625'	1620'	12SUB4898415064
40	A/C Taxiway	N32 39.868' W112 36.629'		12SUB4898015236
41	A/C Runway	N32 39.796' W112 36.831'		12SUB4866215108
42	“	N32 40.488' W112 37.321'		12SUB4791616399
43	A/C Hangar	N32 40.009' W112 36.764'		12SUB4877315500
44	“	N32 40.029' W112 36.785'		12SUB4874115538
45	Fuel Truck	N32 40.033' W112 36.806'		12SUB4870815545
46	Building	N32 40.063' W112 36.804'		12SUB4871215601
47	Chopper	N32 40.060' W112 36.881'		12SUB4859215597
48	“	N32 40.069' W112 36.893'		12SUB4857315614
49	Tower	N32 40.105' W112 36.838'		12SUB4866015679
50	NOT USED			
51	Empty Bunker	N32 40.261' W112 37.275'	1570'	12SUB4798215978
52	Radar	N32 40.243' W112 37.385'		12SUB4781015947
53	AAA	N32 40.228' W112 37.341'		12SUB4787815919
54	“	N32 40.218' W112 37.356'		12SUB4785415900
55	“	N32 40.204' W112 37.343'		12SUB4787415874
56	“	N32 40.214' W112 37.328'		12SUB4789715892

Figure 4.17, page 1 of 5

ETAC TARGET COORDINATES, cont'd

TGT#	NAME	LATITUDE/LONGITUDE (WGS-84)	ELEV	UTM (WGS-84)
57	Building	N32 40.142' W112 36.864'		12SUB4862115748
58	“	N32 40.183' W112 36.890'		12SUB4858115825
59	NOT USED			
60	Convoy (#1 Trk)	N32 40.175' W112 36.831'		12SUB4867315809
61	Truck	N32 40.240' W112 36.870'		12SUB4861415930
62	“	N32 40.295' W112 36.902'		12SUB4856616032
63	“	N32 40.488' W112 37.321'		12SUB4791616399
64	“	N32 40.390' W112 36.955'		12SUB4848516209
65	“	N32 40.441' W112 36.985'		12SUB4844016304
66	“	N32 40.502' W112 37.025'		12SUB4837916417
67	“	N32 40.519' W112 37.035'		12SUB4836416449
68	“	N32 40.572' W112 37.075'		12SUB4830316548
69	“	N32 40.608' W112 37.095'		12SUB4827216615
70	“	N32 40.641' W112 37.105'		12SUB4825816676
71	“	N32 40.676' W112 37.135'		12SUB4821216742
72	“	N32 40.707' W112 37.145'		12SUB4819716799
73	Last Truck	N32 40.735' W112 37.165'		12SUB4816716851
74-79	NOT USED			
80	A/C Bunker	N32 40.846' W112 37.545'		12SUB4757617065
90	“ “	N32 40.440' W112 37.607'	1555'	12SUB4746816317
91	“ “	N32 40.485' W112 37.553'	1560'	12SUB4755316399
92	“ “	N32 40.490' W112 37.605'	1555'	12SUB4747216409
93	Empty Bunker	N32 40.525' W112 37.590'	1555'	12SUB4749716473
94	A/C Bunker	N32 40.545' W112 37.512'	1555'	12SUB4761916509
95	Empty Bunker	N32 40.594' W112 37.551'	1553'	12SUB4756016600
96	A/C Bunker	N32 40.650' W112 37.557'	1550'	12SUB4755216704
97	Empty Bunker	N32 40.701' W112 37.567'	1545'	12SUB4753816798
98	A/C Bunker	N32 40.738' W112 37.571'	1545'	12SUB4753316867
99	Empty Bunker	N32 40.775' W112 37.575'		12SUB4752716935
100	A/C Bunker	N32 40.832' W112 37.585'		12SUB4751317041
301	G Aircraft (IR)	N32 40.720' W112 37.510'		12SUB4762816832
301	H Aircraft (IR)	N32 40.760' W112 37.570'		12SUB4753516907
301	I Lego Bldg (IR)	N32 40.217' W112 36.903'	1601'	12SUB4856215888
302	SAM Site		1500'	
81	Missile Bunker	N32 41.207' W112 37.655'	1522'	12SUB4741517735
82	“ “	N32 41.172' W112 37.549'	1529'	12SUB4757917668
83	“ “	N32 41.081' W112 37.544'	1528'	12SUB4758417500
84	“ “	N32 40.978' W112 37.584'	1538'	12SUB4751917310
85	“ “	N32 40.993' W112 37.698'	1522'	12SUB4734117341
86	“ “	N32 41.062' W112 37.768'	1533'	12SUB4723417470
87	“ “	N32 41.154' W112 37.754'	1522'	12SUB4725817640
88	Radar Van	N32 41.056' W112 37.668'	1532'	12SUB4739017456

Figure 4.17, page 2 of 5

ETAC TARGET COORDINATES, cont'd

TGT#	NAME	LATITUDE/LONGITUDE (WGS-84)	ELEV	UTM (WGS-84)
303	Van	N32 39.067' W112 36.004'	1660'	12SUB4993513742
	N Launcher	N32 39.198' W112 35.940'	1660'	12SUB5003913982
	S Launcher	N32 39.015' W112 35.815'	1675'	12SUB5022913641
	Launcher	N32 39.073' W112 35.829'	1670'	12SUB5020813748
	Launcher	N32 39.128' W112 35.870'	1677'	12SUB5014613851
304	ICBM/SCUD (Ctr of Revetment)	N32 42.053' W112 37.945'		12SUB4698619305
305	RR Yard/Storage Area	N32 40.600' W112 39.166'		12SUB4503616650
	NW	N32 40.635' W112 39.149'	1518'	12SUB4506316714
	SE	N32 40.530' W112 39.060'	1523'	12SUB4519916518
	SW	N32 40.508' W112 39.088'	1524'	12SUB4515516478
	Building	N32 40.739' W112 39.155'	1507'	12SUB4505716907
	Building	N32 40.731' W112 39.170'	1508'	12SUB4503316892
	Building	N32 40.720' W112 39.195'	1507'	
	Building	N32 40.710' W112 39.208'	1508'	12SUB4497316854
306	Bridge (Center)	N32 39.740' W112 38.463'	1634'	12SUB4611015044
	E End	N32 39.742' W112 38.447'	1631'	12SUB4613515047
	W End	N32 39.740' W112 38.463'	1634'	12SUB4611015044
307A	Forward Airfield (Center of Runway)	N32 42.871' W112 35.906'	1550'	12SUB5019420768
307B	SAM/AAA Site	N32 42.705' W112 35.498'		12SUB5082720452
307C	POL Storage Tank	N32 42.999' W112 35.825'	1542'	12SUB5032421003
	POL Storage Tank	N32 43.003' W112 35.834'	1542'	12SUB5031021011
	POL Storage Tank	N32 43.009' W112 35.845'	1542'	12SUB5029321022
	POL Storage Tank	N32 42.994' W112 35.815'	1542'	12SUB5034020994
	POL Storage Tank	N32 42.987' W112 35.802'	1547'	12SUB5036020980
	POL Storage Tank	N32 42.976' W112 35.784'	1547'	12SUB5038720960
	POL Storage Tank	N32 42.970' W112 35.774'	1547'	12SUB5040320948
	POL Storage Tank	N32 43.018' W112 35.868'	1540'	12SUB5025721039
308	GCI/SAM Site (Radar Van)	N32 43.646' W112 35.413'	1526'	12SUB5098522189
	NW Launcher	N32 43.687' W112 35.460'	1523'	12SUB5091322266
	W Launcher	N32 43.654' W112 35.332'	1530'	12SUB5111222202
	SW Launcher	N32 43.604' W112 35.450'	1523'	12SUB5092622112
	Launcher	N32 43.602' W112 35.379'	1545'	12SUB5103822107
	Launcher	N32 43.702' W112 35.387'	1538'	12SUB5102722292
	Launcher	N32 43.606' W112 35.449'	1538'	12SUB5092822116
	Launcher	N32 43.637' W112 35.485'	1535'	12SUB5087322174

Figure 4.17, page 3 of 5

ETAC TARGET COORDINATES, cont'd

TGT#	NAME	LATITUDE/LONGITUDE (WGS-84)	ELEV	UTM (WGS-84)
309	West Tank Group (Salvaged Tanks)	N32 44.648' W112 34.459'		
	Vehicle	N32 45.048' W112 35.328'	1472'	12SUB5115724778
	Vehicle	N32 45.035' W112 35.225'	1483'	12SUB5131824751
	Vehicle	N32 44.964' W112 35.139'	1498'	12SUB5145024618
	Vehicle	N32 44.845' W112 34.990'	1513'	12SUB5167924395
	Vehicle	N32 44.805' W112 34.957'	1517'	12SUB5173024320
	Vehicle	N32 44.823' W112 34.908'	1524'	12SUB5180724352
	Vehicle	N32 44.823' W112 34.823'	1531'	12SUB5193924350
	Vehicle	N32 44.797' W112 34.758'	1536'	12SUB5204124301
	Vehicle	N32 44.783' W112 34.793'	1536'	12SUB5198524275
	Vehicle	N32 44.780' W112 34.859'	1530'	12SUB5188224272
310	North Convoy (Center of Convoy)	N32 44.542' W112 33.979'		12SUB5325023811
	Vehicle	N32 44.631' W112 33.762'	1655'	12SUB5359123971
	Vehicle	N32 44.614' W112 33.807'	1650'	12SUB5352023940
	Vehicle	N32 44.597' W112 33.848'	1640'	12SUB5345623910
	Vehicle	N32 44.578' W112 33.872'	1630'	12SUB5341823875
	Vehicle	N32 44.552' W112 33.908'	1633'	12SUB5336123828
	Vehicle	N32 44.536' W112 33.934'	1631'	12SUB5332023799
	Vehicle	N32 44.529' W112 33.966'	1625'	12SUB5327023787
	Vehicle	N32 44.530' W112 33.993'	1625'	12SUB5322723790
	Vehicle	N32 44.529' W112 34.016'	1610'	12SUB5319223788
	Vehicle	N32 44.532' W112 34.043'	1608'	12SUB5315023794
311	HE Hill	N32 43.305' W112 34.364'		12SUB5261521534
	N Arrow	N32 43.485' W112 34.558'		12SUB5231621871
	S Arrow	N32 43.110' W112 34.260'		12SUB5277221172
	E Arrow	N32 43.365' W112 34.177'		12SUB5290921641
312	Command Post	N32 42.817' W112 33.816'	1684'	12SUB5345820620
313	West Artillery	N32 41.985' W112 33.164'		12SUB5445319068
314	East Convoy (Center Vehicle)	N32 41.225' W112 28.729'		12SUB6136317564
315	South Convoy (West Vehicle)	N32 38.755' W112 35.044'		12SUB5142713142
	(Center Vehicle)	N32 38.875' W112 33.794'		12SUB5338513335
	(East Vehicle)	N32 39.835' W112 30.914'		12SUB5791215044
	Truck	N32 38.799' W112 34.595'	1726'	12SUB5213013213

Figure 4.17, Page 4 of 5

ETAC TARGET COORDINATES, cont'd

TGT #	NAME	LATITUDE LONGITUDE (WGS-84)	ELEV	UTM (WGS-84)
	Truck	N32 38.793' W112 34.686'	1726'	12SUB5198813204
	Truck	N32 38.785' W112 34.748'	1725'	12SUB5189013191
	Truck	N32 38.769' W112 34.819'	1723'	12SUB5177913163
	Truck	N32 38.775' W112 35.128'	1720'	12SUB5129613181
	Truck	N32 38.775' W112 35.214'	1718'	12SUB5116213183
	Truck	N32 38.766' W112 35.268'	1719'	12SUB5107713168
316G	Tank Intersection	N32 41.343' W112 33.047'		12SUB5461917879
	Vehicle	N32 41.337' W112 33.052'	1740'	12SUB5461117868
	Vehicle	N32 41.357' W112 33.053'	1740'	12SUB5461017905
317	Maverick Training Target	N32 41.476' W112 29.791'		12SUB5971018051
318	Live Maverick Target (Center Target)	N32 39.646' W112 36.106'	1645'	12SUB4979114814
	Tank	N32 39.646' W112 36.106'	1645'	12SUB4979214814
	Tank	N32 39.605' W112 36.062'	1653'	12SUB4985914737
	Tank	N32 39.573' W112 36.045'	1651'	12SUB4988514677
	Tank	N32 39.566' W112 36.013'	1651'	12SUB4993414664
	Tank	N32 39.530' W112 35.980'	1659'	12SUB4998514597
	Tank	N32 39.532' W112 35.942'	1659'	12SUB5004514599
	Tank	N32 39.554' W112 35.886'	1659'	12SUB5013214639
	Tank	N32 39.588' W112 35.863'	1659'	12SUB5017014701
	Tank	N32 39.620' W112 35.849'	1652'	12SUB5019214760
	Tank	N32 39.663' W112 35.835'	1652'	12SUB5021614839
	Tank	N32 39.691' W112 35.851'	1650'	12SUB5019114891
	Tank	N32 39.718' W112 35.855'	1648'	12SUB5018614941
	Tank	N32 39.752' W112 35.856'	1646'	12SUB5018515004
	Tank	N32 39.787' W112 35.861'	1643'	12SUB5017915069
	Tank	N32 39.786' W112 35.901'	1641'	12SUB5011615068
	Tank	N32 39.784' W112 35.932'	1642'	12SUB5006715065
330	Friendly Tanks	N32 40.255' W112 27.543'		12SUB6319215746
332	Comm Hill	N32 43.925' W112 34.294'		12SUB5274122679
	Tower	N32 43.878' W112 34.316'	1680'	12SUB5270622592
	Vehicle	N32 43.891' W112 34.326'	1682'	12SUB5269022616
	Vehicle	N32 43.898' W122 34.350'	1650'	12SUB5265322616
333	Airfield Ops	N32 40.205' W112 36.894'		12SUB4857515865

Figure 4.17, Page 5 of 5

TOSS BRIEFING/DEBRIEFING

Figure 4.18 (SAMPLE)

56 RMO

Live Ordnance Expenditure Report

COPIES FORWARDED TO: 56 CE/EOD

Figure 4.19 (SAMPLE)

Chapter 5

RANGE CONTROL OFFICER (RCO) PROCEDURES

5.1. General. Contractor RCOs are under the supervision and control of the Contractor. IAW the Performance Work Statement (PWS), the 56FW will provide a qualified and current RCO (Range Liaison Officer-RLO) to monitor training and provide certification of contractor RCOs. Extenuating circumstances may make it necessary for aircrew members to augment the RCOs. In this event 56 RMO will task specific units, allowing sufficient time for training and certification in accordance with this chapter.

5.2. Tour of Duty. IAW AETC Sup 1 to AFI 13-212, Vol. 2.

5.3. RCO Training, Checkout, and Certification.

5.3.1. General. The training, certification, and recurrency requirements are established in and will be conducted IAW AETC Sup 1 to AFI 13-212, Vol. 1. The 56 FW RLO will monitor all phases of each RCO checkout.

★5.3.2. RCO Certification Check. **The RLO will certify each new RCO IAW AETC Sup 1 to AFI 13-212, Vol. I.** In the absence of an RLO, personnel who were previously qualified RCOs, may be certified by any qualified and current RCO. RCO Certification and Annual Recertification will be documented on RCO Certificate for BMGR (Figure 5.1) and maintained by **56 RMO/RCO**.

5.3.4. RCO Currency. To maintain RCO currency, RCOs must meet the requirements of AETC Sup 1, AFI 13-212, Vol. 1, paragraph 1.3.5.1.3.3. Additionally, RCOs will complete an annual evaluation by demonstrating control of two day missions (at least one of which will be a four-ship) and takes a written examination. The evaluation will be administered by the RLO. RCO's who fail their annual evaluation are immediately decertified.

5.3.4.1. RCO Meetings. The RLO will conduct semiannual RCO meetings as a minimum. All RCOs must attend each meeting or be briefed on the meeting subjects.

5.3.5. RCO Recurrency. In accordance with AFI 13-212 and the AETC Supplement.

★5.3.6. Aircrew Training/Certification. In the event that aircrew are required to augment the civilian RCOs, their training and certification will be conducted by the RLO in accordance with established requirements. Aircrew previously qualified as RCOs may obtain recurrency according to AFI 13-212 and supporting supplements. Certification will be documented on the RCO Certificate and entered in AFORMS. The Certificate will be maintained at **56 RMO/RCO**.

★5.4. **Air-to-Air Range Control Officer Program.** Each unit conducting aerial gunnery operations on the R-2301E, AIR-TO-AIR Range, will develop an A/A RCO Program according to AFI 13-212 and applicable supplements. Units conducting aerial gunnery operations on the BMGR will provide a list of current A/A RCOs to 56 **RMO/RCO** upon request.

5.5. **Instructions, Regulations, Manuals, and Placards.**

★5.5.1. **Instructions, Regulations and Manuals.** The RLO will verify that copies of AFI 13-212 and supplements, plus applicable extracts from the **F-16 AFI 11-series, A-10 AFI 11-series**, AFI 11-214, and T.O. 1-1M-34 are maintained in each manned range tower.

5.5.2. **Placards.** The RLO will verify that placards listing data regarding divert instructions, backup communications, crash and emergency procedures, and safety items will be prominently posted, in a standard manner, in all manned range towers.

5.6. **Other Range Publications/Documents.**

★5.6.1. **Local Publications.** The 56 RMO/QAE will ensure applicable local publications are established, and maintained at each range, and that one copy of each publication is forwarded to 56 **RMO/RCO**.

5.6.2. **Visitors Log.** All personnel not assigned range duties will sign the visitors log.

★5.6.3. **LAFB Form 57, Range Officer's Report.** This report will be completed by the RCO for each tour of duty. The report will be forwarded to Range Operations for review and filing. If a range foul or dangerous pass occurs, Range Operations will forward a copy of LAFB Form 57 to 56 OSS/OSTW. A separate report will be completed for each RCO, to allow for currency tracking. **Additionally, the RCO will immediately notify the ROCC and document any abnormal occurrence (jettison, inadvertent release, range incursions, etc.) on LAFB Form 57, Range Officer's Report. The ROCC will immediately notify the QAE and RMO by telephone and follow up with a Range Incident Report.**

5.7. **Range Opening Procedures.**

5.7.1. **RCO Showtime.** The RCO will be at the scheduled range a minimum of 1 hour prior to the first scheduled range period.

5.7.2. **RCO Notification.** The RCO will notify Range Operations when arriving at the range.

5.7.3. **RCO Inspection Checklist.** Prior to the first mission, the RCO will complete the Range Officer's Inspection Checklist.

5.7.4. **RCO Range Status Report.** No later than 15 minutes prior to the first mission, the RCO will notify Range Operations of range status.

5.8. Operations.

5.8.1. Range Schedule. The RCO is responsible for managing the Range Flight Schedule. Advise flight Leads when 5 minutes remain in their scheduled period if another flight is scheduled immediately afterward. Do not allow flights to extend their period without concurrence of the inbound flight. Day range activities will cease NLT official sunset, or 1800 whichever occurs first (for range scheduling purposes only).

5.8.2. Flight Control. The RCO will grant clearance to enter manned range airspace. Flights are responsible for obtaining current altimeter setting and Gila Bend AFAF active runway from Range Operations. Clearance onto a manned range, when not previously scheduled or for range diversions, may be coordinated directly with the respective RCO. The RCO will inform Range Operations of applicable details. The RCO will advise flights where EOD detonation activity or EOD operations are in progress, as applicable.

5.8.2.1. Lineup/Recoveries. Prior to weapons delivery, flight leaders will confirm the lineup (number of aircraft), events (number and type, to include dive angle, type of recovery), LASER events, and targets. All flights will execute a climbing safe escape maneuver for all conventional deliveries, unless otherwise briefed by the flight lead.

5.8.2.2. Range Traffic/Data. The RCO will confirm right or left conventional range and traffic, strafe panel assignment, and when requested, the current altimeter, surface winds, and any other information requested by the flight lead that can be obtained while safely controlling the flight.

5.8.2.3. RCO Communications. The RCO will insist that flight members acknowledge all RCO radio transmissions.

5.8.2.4. Clearing. The RCO will clear every pass hot or dry after ensuring that the target area is clear, the final approach call is accomplished, the requesting aircraft is on range, in sight, and aligned with the correct target.

★5.8.2.5. Flight Lead Control. The RCO will allow “flight lead control” when flight lead requests such for dry Maverick passes, or other similar events. The RCO may also allow “flight lead control” with ordnance expenditures when environmental conditions preclude the ranger from ensuring all the criteria specified in paragraph 5.8.2.4. are met. “Flight lead control” must be accepted and acknowledged by both the flight lead and the RCO. **Under ‘flight lead control’ during HADB/HARB events, aircraft releasing actual or simulated ordnance will call “in Hot/Dry” or “off Dry”, as appropriate. No clearance to expend will be transmitted from the RCO or flight lead. The intent is to issue an advisory radio call to the RCO/flight members that an aircraft is committed to a weapons release pass. RCO’s will continue to spot actual ordnance releases to validate weapons expenditure and impact location.** When the range is released to “flight lead control,” the RCOs will continue to monitor the flight as a ground safety observer. The RCO will not allow any range maintenance to be conducted when ordnance is being expended under “flight lead control” or any high altitude delivery.

5.8.2.6. Spacing. If spacing affects safety or scoring capability, direct the flight to open or close spacing, where needed, or go through "High and Dry" until corrected.

5.8.2.7. Strafe. The RCOs will not allow range maintenance during any hot strafe events. On Ranges 2 and 4, strafe pits that have poor depth, are crusted, or have standing water in the vicinity may be used by A/OA-10s for LAS and LRS, as long as the aircraft fly the standard pattern and do not pass the 3-9 line of the targets. On Ranges 1 and 3, the possibility of personnel to the west of the targets requires that strafe pits with poor depth, crusting, or standing water be closed for all use.

5.8.2.8. High Winds. When sustained (including gusts) winds exceed 25 KTS, lower the strafe targets. When winds exceed 35 KTS (including gusts) close the range, advise all aircraft to depart the range for winds, and evacuate the towers. Monitor winds from the groundshack through regular contact with Gila Bend weather, and resume operations when winds are below 35 KTS.

5.8.3. Communications.

5.8.3.1. Main Tower. There is one fixed frequency UHF radio (primary) and one multi-channel UHF radio in the tower. The fixed frequency radio is tuned to the range frequency. The multi-channel is available for backup, set on range operations frequency. On Range 3, the multi-channel will be set to ETAC discrete if joint-use procedures are in effect. If the primary radio fails, try to contact the aircraft on the multi-channel. If no contact, notify Range Operations to inform the flight of the situation and the anticipated delay, if known.

5.8.3.2. Minimum Radios. The range may be opened with one operational UHF radio but the flight will be advised of the limited capability, Range Ops will be notified, and a work order submitted.

5.8.3.3. Aircraft Radio Failure. The RCO will advise other flight members when an aircraft flies past the tower rocking its wings as a NORDO signal. If the aircraft remains in the traffic pattern, the RCO may attempt, with coordination with the flight lead/wingman, to contact the NORDO aircraft on backup frequency (335.9) with the multi-channel UHF. If contact is established, advise the flight lead/wingman, and recommend that the entire flight work on the backup frequency. Continue the mission after all flight members are in contact with the range. If the aircraft breaks out opposite traffic, an emergency is indicated.

★5.8.3.4. Tape Recorder. All ground-to-air **Land Mobile Radio (LMR)** communications on the range will be recorded plus any changes (e.g., weather, RCOs, fires, etc.). The RCOs will begin the tape with the range name, date, RCO's name, time, and current weather. Recordings will be held a minimum of 24 hours before reuse. In the event of an incident requiring the tape to be retained, annotate the RCO report and send the tape to Range Operations.

5.8.3.5. Clearance to Enter/Cross Manned Ranges.

5.8.3.5.1. Ground Parties. Ground parties entering the range via the main access road will not proceed beyond the range entry point until clearance is granted. The telephone at the entry point will normally be used. When a mission is in progress, only the RCOs will determine whether access is safe and grant clearance accordingly. Clearance authority cannot be delegated

5.8.3.5.2. FM Radio Operations. Occasionally, Range Operations or other authorized personnel will request clearance to enter/cross ranges via FM radio. The FM radio in the main tower may be turned down to a low but readable volume during missions. Under no circumstances will the FM radio be turned off/audio full down while the range is manned.

5.8.4. Night Range Operations. Night minimum altitude devices are available; however, they are not as effective as the daylight devices. Increased emphasis is required for aircraft position and attitude. Diving deliveries on the conventional target by non-LANTIRN aircraft will be permitted if the target area is illuminated by airborne flares or at least two ground marking devices within 300' of the target. When working flare missions, the RCOs will call out the number of flares observed if less than indicated by the flareship, and warn aircrew if a flare could affect the pattern.

5.9. Fouls/Dangerous Passes.

★5.9.1. Reference. According to applicable volume of AFI 11-MDS Vol. I, AFI 11-Series, AFI 11-MDS-Vol III and AFI 11-214, to include:

- Descending below minimum altitudes for the event.
- Firing past the foul line on LAS or on the TAC Strafe Target.
- Double-burst on LAS/LRS.
- A lazy recovery on LAS, all recoveries not IAW T.O. -34-1.
- Dropping without clearance.
- A violation of range or flight safety.
- Aircrew will discontinue and hold high and dry above the range after receiving a second foul.
- A single violation of range or flight safety, as judged by the RCO or Flight Lead, may be considered dangerous by the RCO or Flight Lead, which will require the flight member to discontinue events and hold high and dry above the range.

5.9.2. Fouls. Advise pilots of minimums or other deviations/violations that occur. Include specific reasons for fouls. Do not clear follow-on passes of that aircraft until that pilot acknowledges the foul.

5.9.3. Foul Recording. The RCO will ensure foul/ dangerous pass information is recorded on the computer score sheet and the Range Officer's Report (LAFB Form 57).

5.10. Weapons Delivery Scoring.

5.10.1. Bullseye Point. Bullseye is the center of the target.

5.10.2. Score Passing. RCOs will pass scores by miss distance and clock positions (i.e., 8 at 6). A score of three meters or less will be passed as a "Bull." No score will be given over the radio or on the computer score sheet when a foul related to that event occurs.

5.10.3. Strafe. When possible, RCOs will advise pilots of strafe impacts outside of the center of the impact area.

5.11. Curtailed Range Operations.

5.11.1. Weather Reporting. When Weather is a Factor. The RCO will obtain range weather from the weather station, local PIREPs, and make observations to ensure that arriving flights are accurately briefed on current conditions before entering the range complex. The RCO will close the range when PIREPs or RCO observation confirms the weather is below the minimums.

5.11.2. Flight "Terminate" or "Knock-It-Off" calls, or Aircraft emergency.

- Acknowledge the call, then maintain radio silence and assist as required.
- Visually monitor flight members to assist in safe separation.
- If the emergency aircraft proceeds to GBN for a precautionary/emergency landing, advise Range Operations.

★5.11.3. Unauthorized Airspace Incursions. Call a "Knock-it-Off", direct aircraft as required to deconflict flightpaths, then alert the flight lead using the range of the intruding aircrafts location. If possible, make a call on guard to alert the flight which range they are on and the best direction to leave the airspace (i.e. "Range 4 on guard, F-XX over Range 4 work West immediately"). Report airspace violations to range operations and complete AF Form 457 **USAF Hazard Report and initiate a Range Incident Report.**

5.11.4. Crash. Close the range and direct the using flight either to breakout or act as RESCAP. RCOs will remain in the tower. Dispatch the range crew to assist, if required. Provide Range Operations with all available details to include:

- Call sign/Flight position.
- Type aircraft, tail number, and home base.
- Exact location and time.
- Status of crew members, if known.
- Ordnance on board, if known.

5.11.5. Unauthorized Personnel. Suspend operations immediately and notify Range Operations of the situation and anticipated delay.

5.11.6. Ricochet. Suspend all LAS activities and provide emergency assistance to the affected aircraft, as necessary. Complete the Ricochet Report according to paragraph 5.14 below.

5.12. Normal Range Closing. Under normal conditions, the range may be closed with coordination through Range Scheduling. After duty hours, contact Luke Command Post.

★5.13. Reports and Logs. RCOs will review discrepancy logs and other documents to ensure accuracy and legibility. **The RCO will complete the LAFB Form 57 for non 56 FW users.** The LAFB Form 57 and AETC Form 330 **Weapons Delivery Storage Record**, or computer printout will be completed and forwarded as appropriate.

5.14. Ricochet Report. Report the following to Range Operations, Luke Wing Safety, and Luke Command Post:

- Aircraft type, call sign, and home base.
- Time of occurrence, type event, and target.
- Target condition, pre-opening inspection results, time of last plowing/hand policing, etc.
- Description of Pass. Approximate dive angle, recovery altitude, and recovery maneuver, rounds fired, hits scored, and description of impact appearance. Probable cause, if known.

RCO Certificate for BMGR Format

A. _____ is qualified and recommended for training as RCO A/A RCO
IAW AFI 13-212 Vol. 1/ AETC Sup 1.

_____ Signature of **56 RMO/RCO**

_____ Printed Name _____ Date

B. Has completed RCO A/A RCO academic training and written examination.

_____ Signature of Certifying Official

_____ Printed Name of Certifying Official _____ Date

C. Has completed initial/re-qualification on-range demonstration.

_____ Signature of Certifying Official

_____ Printed Name of Certifying Official _____ Date

D. Is authorized to perform RCO A/A RCO Duties as indicated:

Day RCO__ Night RCO__ A/A RCO__

E. Approved

_____ Signature of Certifying Official

_____ Printed Name of Certifying Official _____ Date

F. Completion of Annual Re-certification.

YEAR	EXAM SCORE	DATE	ON-RANGE DEMO	DATE	CERT OFFICIAL

★Figure 5.1 (SAMPLE)

Chapter 6

HELICOPTER OPERATIONS

6.1. General. This chapter addresses helicopter operations on the tactical (TAC) ranges and on Range 3, when operating from GBAFAF.

6.1.1. Departing GBAFAF or any AUX field. Before departing, contact Range Operations to determine the status of ranges to be transited/entered, as well as existence of traffic in the AJO Corridor. When taking off from an AUX field, contact the nearest manned range before takeoff to ensure deconfliction.

6.1.2. Southerly Departures. Intercept the AUX 6 range road at 3251.7N 11246.0W before entering the AJO Corridor. Fly on the right hand side (west) of the highway to Black Gap, 3249.6N 11245.0W.

6.1.3. RTB from South. Fly on the east side of the railroad tracks which parallel Hwy 85.

6.2. NTAC Entries.

6.2.1. Gila Bend Air Force Auxiliary Field (GBAFAF) Direct Entry. Depart GBAFAF as directed. At Black Gap, turn to 245 degrees for 12 NM to Malpais Hill, 32 42.5' N - 113 49' W. Hold northeast airborne or on the ground until scheduled range time if the range is hot. If NTAC is not hot, proceed inbound from Malpais Hill.

6.2.1.1. Altitude. 100 feet AGL minimum and 500 feet AGL maximum day, Night Vision Goggles (NVG) and Night Visions Systems (NVS). 2,200 feet MSL minimum and 3,000 feet MSL maximum Unaided Eye Night (UEN). Higher/Lower altitudes are not authorized until established in NTAC airspace.

6.2.1.2. Communications. Contact Range 4 RCO (308.7) passing Black Gap if Range 4 is open. Give call sign, type, number of aircraft, altitude, location and destination. If Range 4 is not open and Range 2 is, contact Range 2 RCO (303.1) departing Black Gap. Contact using flight on NTAC (296.5) prior to Malpais Hill. If NTAC is cold, make a call in the blind passing Malpais Hill prior to NTAC entry. If STAC is hot, make a coordination call to using flight on STAC (315.0). State call sign, type/number of aircraft and NTAC range period.

6.2.2. AUX 6 Entry. From AUX 6 to the range road to Hwy 85. Proceed via southerly departure procedures.

6.2.3. AUX 10 Entry. From AUX 10 direct to Malpais Hill. Coordination with Range 2 and 4 must be achieved before departing.

6.2.4. AUX 8 Entry. From AUX 8, proceed direct NTAC, heading 258 degrees for 9NM. Coordination with Range 2 must be achieved before departing. Hold short of NTAC boundaries,

airborne or on the ground, until cleared on by using flight. Make a call in the blind on NTAC frequency prior to entry if range is "cold". If STAC is hot, make a coordination call to using flight on STAC (315.0). State call sign, type/number of aircraft and NTAC range period.

6.3. NTAC Departures. Contact GBAFAF tower at or prior to Black Gap for landing instructions.

6.3.1. To AUX 10. Depart NTAC to Malpais Hill. From Malpais, direct to AUX 10.

6.3.2. To GBAFAF or AUX 6. Depart NTAC to Malpais Hill, direct Black Gap. Proceed from Black Gap to AUX 6 or GBAFAF, as required.

6.3.3. Via AUX 8. Depart NTAC direct to AUX 8. Use caution for high terrain and Range 1 and 2 aircraft patterns.

6.3.4. Altitudes. 100 feet AGL minimum and 500 feet AGL maximum day, NVG, NVS. 2,200 feet MSL minimum and 3,000 feet MSL maximum night UEN. Aircraft must be at specified altitudes prior to departing NTAC airspace.

6.3.5. Communications. Make a call in the blind on NTAC frequency prior to departing. Contact GBAFAF Range Operations requesting status of manned ranges. Contact Range 2/4 RCO (303.1/ 308.7) passing Malpais Hill to pass call sign, number, type of aircraft, altitudes, location and destination. Do not depart Malpais Hill until coordination is achieved. Contact Range 1/2 (298.6/ 303.1) when proceeding via AUX 8. Do not depart vicinity of NTAC until coordination is achieved.

6.4. ETAC Entries.

6.4.1. GBAFAF (West) Entry. Direct from GBAFAF (132 degrees mag heading) to a point south of Charlie Hill (32 46.7' N - 112 36.8' W).

6.4.2. Jack-in-the-Pulpit Entry. Course line from GBAFAF (120 degree magnetic heading) to the valley at 32 48.5' N - 112 35.5' W), proceed southeast through the valley until abeam Jack-in-the-Pulpit (3245.0N - 11232.8W), proceed south passing into ETAC west of the Jack-in-the-Pulpit.

6.4.3. Altitude. Aircraft flying between GBAFAF and ETAC shall remain between 100 feet AGL minimum and 3,500 feet MSL maximum day, UEN, NVG, and NVS.

6.4.4. Communications. If Range 3 is open, make a coordination call to Range 3 RCO (311.3). State call sign, type, number of aircraft and ETAC range period. Switch to ETAC discrete frequency for operations. Advise Range Operations when occupying ETAC.

6.4.5. Holding. If ETAC is hot and holding is required, head 116 degrees from GBAFAF for 10 NM and hold southwest along the road in the vicinity of 32 48.5' N - 112 37.5' W, either in flight or on the ground.

6.5. ETAC Departures.

6.5.1. Depart ETAC vicinity of Charlie Hill on a mag heading of 312 degrees toward GBAFAF. Proceed to land at GBAFAF.

6.5.2. Altitudes. Aircraft flying between ETAC and GBAFAF will remain between 100 feet AGL minimum and 500 feet AGL maximum day, NVG, and NVS.

6.5.3. Communications. When departing ETAC, make a call in the blind on ETAC (305.6) and Range 3 (311.3) if Range 3 is open. Advise GBAFAF Range Operations when helicopter operations are complete for the day. Contact GBAFAF tower after departing ETAC for landing instructions.

6.6. STAC Entries.

6.6.1. AUX 8 Entry. Depart GBAFAF as directed. At Black Gap, continue south until abeam AUX 8 and turn westbound heading 259 degrees for 15 NM to vicinity 3236N - 11302W. Use caution for high terrain and Range 1 and 2 aircraft traffic patterns. Proceed southwest bound heading 204 degrees for 10 NM and enter STAC at the northeastern most corner.

6.6.2. Altitude. Maintain 100 feet AGL minimum and 500 feet AGL maximum day, NVG, and NVS. For UEN fly 2,200 feet MSL minimum until last leg to STAC. Then fly 2,500 feet MSL minimum until established on STAC. Maximum UEN is 3,000 feet MSL. Higher or lower altitudes are not authorized until established in STAC airspace.

6.6.3. Communications. Contact Range 2 RCO (303.1) passing Black Gap if Range 2 is open. Give call sign, type, number of aircraft, altitude, location and destination. Before departing Crater Mountains, contact Range 1 RCO (298.6) to obtain clearance to transit west of Range 1. If NTAC is hot, make a coordination call to using flight on NTAC (296.5). State call sign, type, number of aircraft and STAC range period. If NTAC is cold, make calls in the blind on STAC frequency (315.0) entering STAC. Advise GBAFAF Range Operations when occupying STAC.

6.6.4. Holding.

6.6.4.1. Range 2. If holding is necessary prior to transitioning through Range 2, hold between Black Gap and AUX 10, either in the air or on the ground.

6.6.4.2. Range 1. If holding is necessary prior to Range 1, hold in the vicinity of AUX 8; either in the air or on the ground. Advise Range 2, if open.

6.6.4.3. STAC. If holding is necessary prior to entering STAC, hold in the vicinity of 3236N - 11302W; either in the air or on the ground. Advise Range 1, if open.

6.7. STAC Departures.

6.7.1. To GBFAF, AUX 6, 8, and 10. Depart STAC at the northeastern-most corner and fly mag heading of 024 degrees for 10 NM to vicinity 3236N - 11302W. Proceed east on mag heading of 079 degrees for 15 NM to Hwy 85. Continue north (on the right hand side of railroad tracks). Use caution for high terrain and Range 1 and 2 aircraft traffic patterns.

NOTE: If staging out of AUX 6 or GBFAF; land at appropriate landing site.

6.7.1.1. Altitudes. Maintain 100 feet AGL minimum and 500 feet AGL maximum day, NVG, and NVS. For UEN, fly 2,500 feet MSL minimum on first leg departing STAC. Then fly 2,200 feet MSL minimum for the remainder of the departure route. Maximum UEN is 3,000 feet MSL. Aircraft must be at specified altitudes prior to departing STAC airspace.

6.7.1.2. Communications. When departing STAC, make a call in the blind on STAC frequency (315.0) and NTAC frequency (296.5) if NTAC is hot. Contact GBFAF Range Operations when departing STAC requesting the status of manned and TAC ranges. Advise GBFAF Range Operations when helicopter operations are completed for the day. Contact Range 1 and 2 RCO when departing STAC, if those ranges are open. Give call sign, type, number or aircraft, altitudes, location and destination for coordination of transitioning through open ranges. Contact GBFAF tower at Black Gap for landing instructions.

6.8. Range 3/ETAC Joint Use Operations. For joint use operations refer to Chapter 3, paragraph 3.16.10.

6.9. Range 3 Operations: (IAW para 3.16.)

6.9.1. GBFAF Entry. Depart GBFAF (160 degrees magnetic heading) as directed to Range 3.

6.9.2. Altitude. Aircraft flying between GBFAF and Range 3 shall remain between 100 feet AGL minimum and 3500 feet MSL maximum day, NVG, and NVS. UEN will maintain a minimum altitude of 2500 feet MSL.

6.9.3. Communications. Contact Range 3 RCO before departure for clearance on the range.

6.9.4. Clearance. IAW range entry and clearance, paragraph 3.13.

6.9.5. Holding. If holding is required head 116 degrees magnetic from GBFAF for 10NM and hold southwest along the road in the vicinity of 3248.5N, 11237.5W.

6.9.6. Targets. Will be limited to the Nuclear Weapons Delivery (NWD) Target.

6.9.7. Patterns. Will be flown 295 degrees magnetic heading inbound, with left traffic. The traffic pattern will be flown outside of the scoring towers.

6.9.8. Ordnance. 20mm, 30mm, and 2.75 inch FFAR may be fired from diving, running, and hover fire direct. Rocket engagements will be limited to a maximum of 2500 meters while on inbound heading. All expenditures will be limited to training ordnance.

6.9.9. LASER Operations. IAW LASER procedures in paragraph 2.11.

6.9.10. Range 3 Departures. Depart Range 3 and proceed to GBAFAF. Aircraft flying between Range 3 and GBAFAF will remain between 100 feet AGL minimum and 500 feet AGL maximum day, NVG, and NVS. UEN will proceed at a minimum altitude of 2500 feet MSL. Contact GBAFAF tower after departing Range 3 for landing instructions. Advise GBAFAF Range Operations when helicopter operations are completed.

Helicopter Entries and Departures

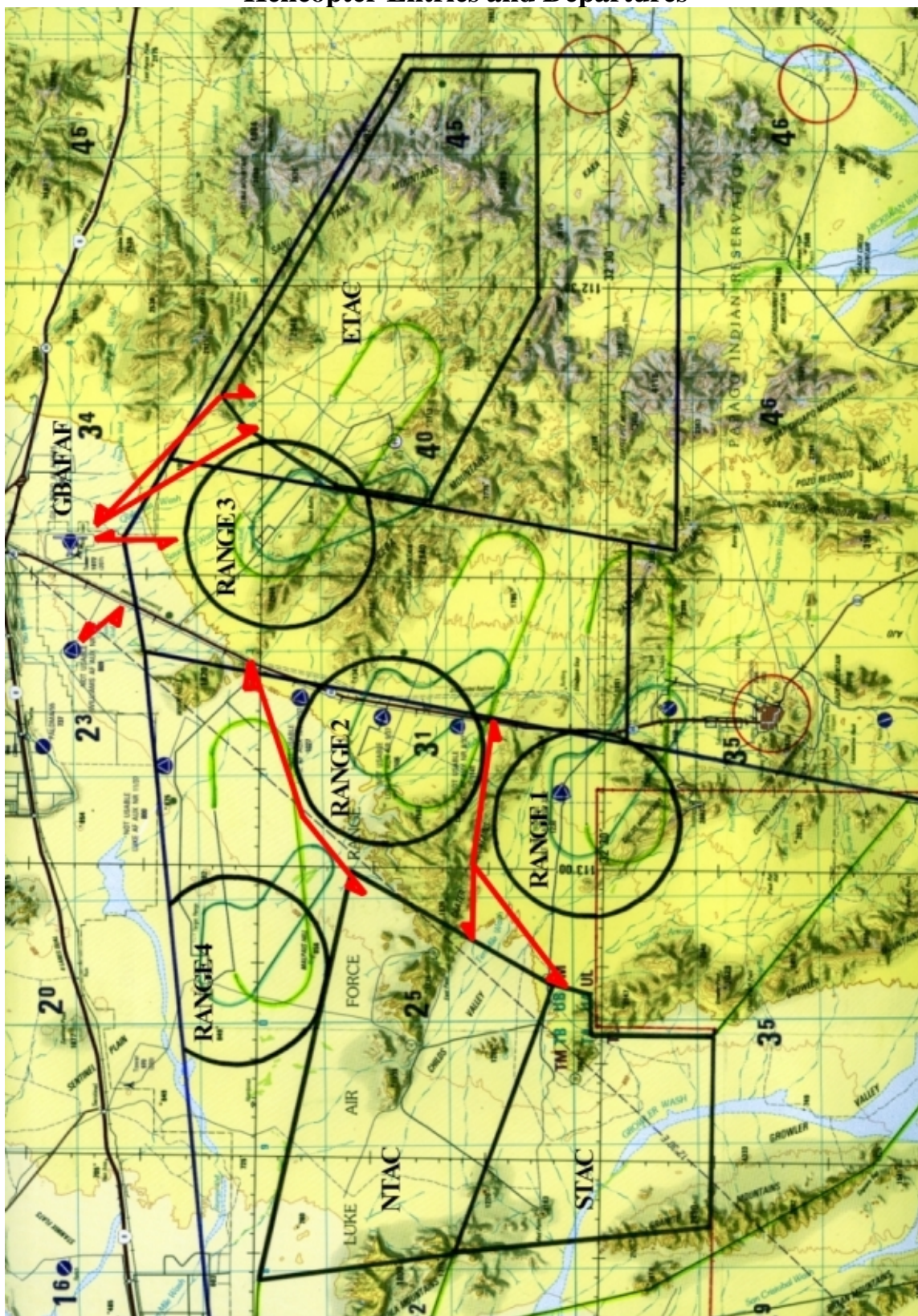


Figure 6.1

Chapter 7

SURFACE ACCESS ON THE GOLDWATER RANGE

7.1. General. This chapter establishes policies and procedures for the control of vehicles and personnel on the USAF portion of the Barry M. Goldwater Range (BMGR). It applies to all personnel entering or traversing any portion of the range complex. All USAF military, civilian and contractor personnel who have a level of responsibility for the range complex must ensure strict compliance with these procedures--adherence is mandatory.

7.2. Overview. The BMGR complex includes approximately 42,000 square miles of land in southwestern Arizona and the airspace above it. Approximately two-thirds of the land area has been reserved for military training. The remaining one-third of the BMGR lies over the Cabeza Prieta National Wildlife Refuge. The BMGR is used for military training and operations on manned and unmanned ranges. Portions of the range are available for recreational use, provided environmental and operational restrictions are met.

7.3. BMGR Sections. The BMGR is divided into three sections:

7.3.1. BMGR. The eastern section, controlled by the USAF, is called the Barry M. Goldwater Range (BMGR). For more information on this section, contact either Range QAE or Range Operations at:

56RMO/QAE
HCO1 Box 20 3096 1st St.
Gila Bend AFAF, AZ 85337;
Phone Comm: 520-683 -6261 / FAX 6239; DSN 896-5261; FAX 5239.

7.3.2. R-2301W. The western section, controlled by the USMC, referred to as R-2301West. For information on this section, contact:

Commanding Officer
H & HS ATC Box 99160
MCAS Yuma, AZ 85369-9160;
COMM Phone: 520-341-2214/ 15;
DSN Phone 951-2214/ 15 FAX 2964.

7.3.3. CPNWR. The Cabeza Prieta NWR, controlled by the US Department of the Interior, underlies the southern half of both the BMGR and the 2301W sections. For information on this section, contact:

US Fish and Wildlife Service
PO Box 418
Ajo, AZ 85321;
COMM Phone: 520-387-6483.

7.4. BMGR Complex. This chapter is only applicable to the eastern sector of the BMGR. From a flying perspective, the BMGR includes four manned ranges (numbered Ranges, 1 through 4), three tactical un-manned ranges (called North TAC, South TAC, and East TAC), an air combat range (called Air-to-Air). For surface access purposes, the BMGR is divided into Areas A, B, C, D, and the Dart Drop.

7.4.1. BMGR Access. The manned ranges, the tactical ranges, and Air-to-Air range are reserved for military operations and official duties only. Access to these ranges must be approved in advance by the Range Operations Control Center (ROCC), in accordance with the procedures described below. NOTE: Use of the runway and ramp space at Gila Bend is included in this requirement. Gila Bend AFAF is an emergency use only airfield with extremely limited weight bearing capability and no transient support available except for fuel. Refer to FLIP AP/1 for additional information.

7.4.2. Areas A and B. Areas A and B are non-target/ non-munitions impact areas and are the most frequently used areas for recreational purposes.

7.4.3. Areas C and D. Areas C and D are used for military deployments and field training exercises. Recreational use of any kind is not permitted in these areas.

7.4.4. Dart Drop Area. The Dart Drop area may not be used for recreational use. The ROCC maintains and monitors DART/ AGTS mission schedules. Personnel desiring access to the Dart Drop area for official use must contact the ROCC to obtain permission in accordance with the procedures described below.

7.5. Range Access Procedures.

7.5.1. EOD Range Safety Briefing. Any individual requiring/ desiring access to any portion of the BMGR for official use must receive an EOD Range Safety Briefing and sign the EOD/Range Briefing Statement. The Range Safety Briefing is conducted by ROCC personnel between 0730 and 1600 on regular workdays, in building 324 at the Gila Bend Air Force Auxiliary Field (GBAFAF), 3 miles south of the town of Gila Bend, AZ. The briefing statement must be signed by the individual at the completion of the briefing and remain valid for one year.

★7.5.1.1. Release and Hold Harmless Agreement, Luke AFB Form 11. The LAFB Form 11 is used to document LAFB sanctioned civilians access to ordnance impact areas of the BMGR.

7.5.2. Master Range Schedule. ROCC personnel will, during normal duty hours, grant permission for range entry after verifying the Master Range Schedule.

7.6. Access for Official Duties. Official duties are defined as activities sanctioned by LAFB for the purpose of operating and maintaining the range complex, the use of the range complex for ground and air military training and exercises, or other governmental or civilian agency uses officially authorized by the USAF in writing. Any official use of the BMGR by regular or casual users for purposes of training or testing must be approved in detail by the FAC. Use the

checklist at Figure 7.3 to coordinate with the proper authorities. The 56 FW/RMO will be informed of ground exercises via staff summary for Ops Group coordination. Ground deployments requesting access to conduct Field Training Exercises are required to brief participants IAW Figure 7.2. In addition, deployments are required to conduct exercises in areas already environmentally cleared. The only approved locations are Williams Auxiliary Field 6 **and Stoval Airfield**, which require a CATEX prior to use. If a unit desires an area other than those listed, they must request and fund an environmental impact analysis. All range access, environmental use restrictions, and entry/ exit procedures must be strictly followed. Range safety awareness is paramount, and potential hazards need to be briefed to all participants. Intrabase radios for communications with Range Operations are extremely limited and only occasionally available to visitors. If unavailable, access on and off the range must be accomplished during scheduled cold periods.

7.7. Manned Range Access. Upon entering the range gate and prior to entering the range complex, the individual in charge of the party must, via radio or the access telephone inside the gate, contact the Range Control Officer (RCO) responsible for that range to request clearance. The RCO's authority to grant or deny access clearance is absolute; access is denied unless and until the RCO authorizes entry. If no contact with the RCO, contact ROCC via radio or telephone, to coordinate with the RCO for entry. If the range is unmanned or closed, the ROCC should be contacted for entry authorization. In that case, access is to be considered denied unless and until the ROCC authorizes entry.

7.8. Tactical Range Access. Personnel desiring entry to or traveling across a tactical range must have FM radio contact with the ROCC. Access to and across the tactical ranges is granted by the ROCC. The ROCC must be notified via radio and range access requested. The ROCC will grant access, as appropriate, and log the entry in the daily traffic log. Access clearance is to be considered denied unless specifically provided by the ROCC.

7.9. Range Departure. Each person authorized access to a range must notify the authorizing activity, i.e., RCO or ROCC, when he/ she has departed the range. Range departure times will be entered into the appropriate traffic log. If a range closes and an individual has not confirmed clearance from the range, the RCO will report the "failure to clear" to the ROCC. If the ROCC closes and an individual has not confirmed clearance from the range, the ROCC will report the "failure to clear" to the GBAFAF Security Police.

7.10. Failure to Clear a Range. Each person or group authorized access to the range complex must notify the authorizing activity when departing the range. Failure to notify the appropriate authority when he/ she has left the range complex will be reported to the QAE and Luke Range/ Airspace Management personnel and may result in the individual being barred from future access. When an individual on official duties, who has been properly cleared onto or across a manned or tactical range, fails to notify the RCO or ROCC of departure, the RCO/ ROCC shall determine whether or not to close the range and whether or not a ground search should be initiated.

7.11. Recreational Access to BMGR.

★7.11.1. Application for Range Entry. **GBAFAF Security Forces issues recreational applications for permits to Area A and B only.** The **BMGR/CPNWR permit** is retained by the requesting individual in case of inspection by Arizona Fish and Game Department and Law Enforcement personnel. The requestor's name **and approved permit#** is maintained in a log book kept by GBAFAF security forces.

ENVIRONMENTAL PROTECTION RULES FOR THE BARRY M. GOLDWATER RANGE (BMGR)

1. All vehicles must stay on designated roads at all times. Whenever possible, vehicles should not turn around or pass other vehicles off of existing roadways.
2. Deployment camps must be contained within the boundaries of designated sites.
3. Damage to soil and vegetation within designated deployment sites shall be minimized by spreading campsites/impact out, and by avoiding contact with vegetation. Soil compaction and loss of vegetation will quickly render the site unusable for future deployments.
4. Clean up and/or rehabilitation of damaged sites will be the responsibility of the deployed troops. Deployment sites may be inspected immediately before or after each deployment leaves.
5. Deployed troops shall make every effort to avoid damaging any vegetation. Ocotillo, saguaros and several other plants, especially cactus, are state protected species; damaging these plants is punishable by monetary fines.
6. All trash and refuse must be contained and transported back to Gila Bend AFAF for proper disposal.
7. Porta-johns will be provided at deployment sites and must be used for all human waste. The nitrogen in urine persists in desert environments for a long time, and "peeing in the bushes" will quickly make deployment sites smell unpleasant. Under remote field conditions, individual human waste should be buried away from washes, water holes, roads or any developed area. Toilet paper should be burned or carried out with other trash.
8. Any hazardous waste spills, or spills of any petroleum, should be properly contained, cleaned up and disposed of according to current regulations. Range Operations at Gila Bend Auxiliary Field shall be notified in the event of any such spill, and in turn will notify the Environmental Branch at Luke Air Force Base.
9. The Sonoran pronghorn antelope is a federally listed endangered species. Ninety-five percent of its existing distribution in the US is in the CPNWR and BMGR. In addition, eight federally listed, twelve proposed threatened and endangered, and at least six State of Arizona protected species inhabit the BMGR.
10. Deployed troops shall not shoot at, chase, scare or in any other way harass wildlife on the Range, including snakes, lizards, birds, or mammals.
11. Deployed troops shall not disturb or remove any historic or archeological artifact they might find on the Range. Troops are encouraged, however, to note the location of

such objects and report them to Range Operations at Gila Bend AFAF, who should notify 56 RMO at LAFB.

12. Encounters with dangerous/venomous wild life can be minimized by not providing nooks and crannies that snakes and scorpions seek out (i.e., piles of bed clothing); be sure to check shoes for scorpions before putting them on. Remember that food scraps around camps attract rodents, which in turn attract rattlesnakes.

Figure 7.2 (SAMPLE)

CHECKLIST FOR MILITARY ACTIVITY ON THE GROUND

1. Have the FAC/ALO send a request detailing:
 - a. exactly which ranges and Observation Points (OPs) they intend to use (they should only use what is in the range regulation);
 - b. dates and times. (note if night missions are requested.);
 - c. also, they should detail the type of personnel and equipment they're bringing, in clear-text. This lets us know their communication and LASER capabilities, as well as what kind of personnel we are clearing into an impact area.
 - d. they can also include their support requirements;
 - e. a sample letter is detailed below.
2. Have the FAC/ALO send the entire document to us (FAX DSN 896-7655) and the QAE at Gila Bend (FAX DSN 896-5239). They should also notify the 162FG/DOS at Tucson (FAX DSN 924-6371), and the 355WG at Davis-Monthan (355OSS/OSOS) FAX DSN 361-5848.

Figure 7.3 (SAMPLE)

56FW Range Management Office REQUEST FOR MILITARY ACTIVITY ON THE GROUND

_____ (date)

MEMORANDUM FOR: 56FW Range Management Office (RMO) Range Scheduling
Gila Bend QAE

FROM: _____ (unit) _____ (name)
_____ (phone)

SUBJECT: Request for ground party access to Barry M. Goldwater Range (BMGR)

1. This unit requests ground access to the BMGR for the purpose of:
_____ (type of activity) as detailed below:

Date(s)	Time(L)	Ranges/observation points/coordinates
_____	_____	_____
_____	_____	_____
_____	_____	_____

2. The following personnel are expected to deploy (attach roster if required):

Name/Rank	SSAN	Duty Position
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

3. We will bring the following equipment (include target designator LASERs, attach list if required):

including the following hazardous materials:

4. We request the following support from Gila Bend AFAF:

A. Transportation: specify number and type of vehicles. *Range contractor has limited ability to provide support vehicles.*

B. POL: specify type/quantity and how will it be paid for.

C. **Billeting:** contact the Billeting office at x5238/40 to arrange quarters.

D. **Weapons/munitions storage:** specify type and quantity of weapons, ammo or explosive devices, to include Smoky SAMs. Contact the SPs at DSN 896-5220.

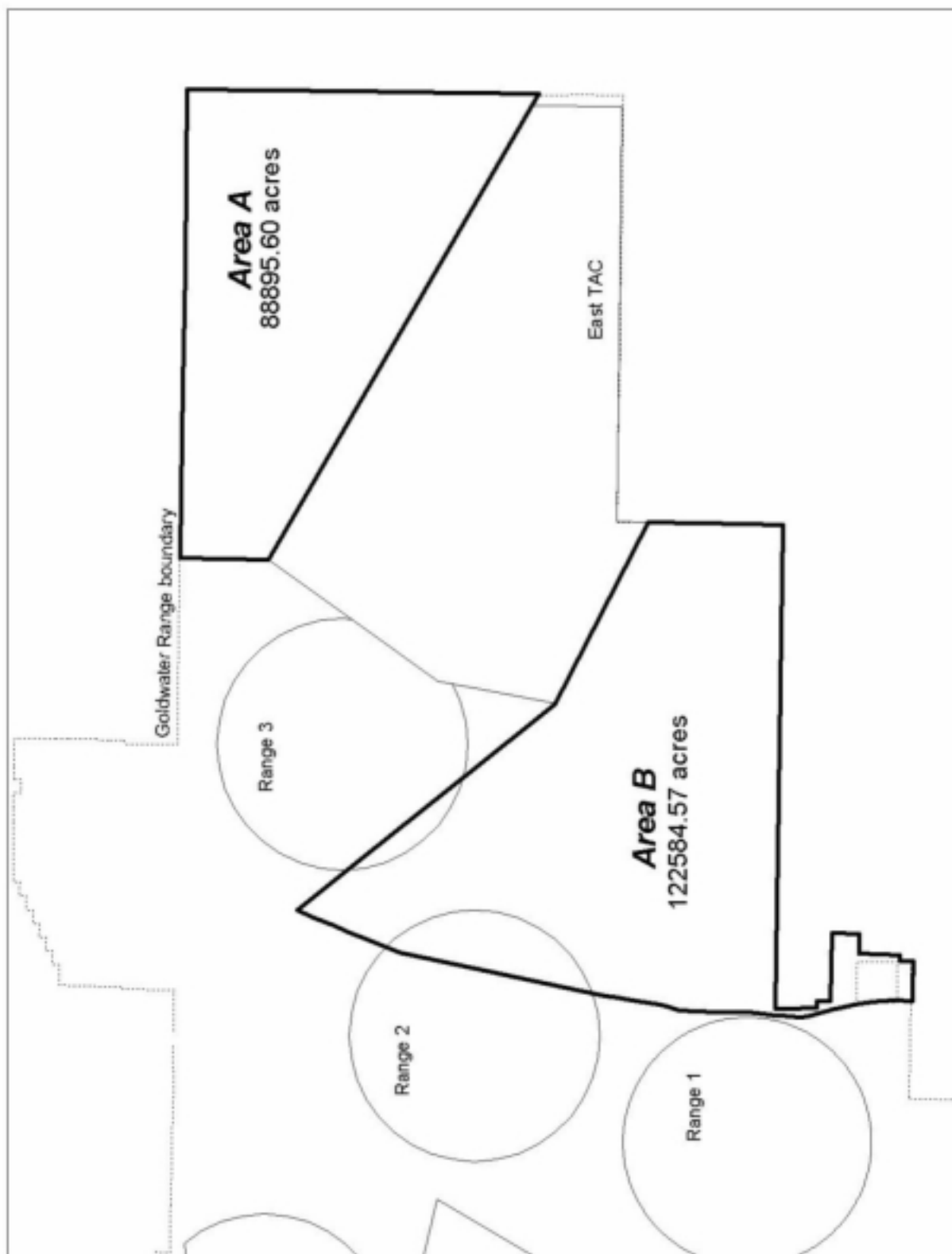
E. **Comm:** Specify any frequencies other than the normal range operating frequencies contact the Comm QAE office at 896-5163.

5. We will deploy/employ in conjunction with:

6. We acknowledge and accept that only *limited* emergency medical support is available through the Gila Bend AFAF Fire Department. We also acknowledge that final entry approval requires a face to face briefing with QAE prior to entering any portion of the BMGR on the day the operations will be conducted.

7. Copies of this request have been faxed to:

56FW Range Management Office	DSN FAX 896-7655, voice -7654
Gila Bend Air Force Auxiliary Field QAE	DSN FAX 896-5239, voice -5261
162FG/DOS (Tucson, AZ ANG)	DSN FAX 924-6371, voice -6070
355 OSS/OSOS (355 WG, Davis-Monthan AFB)	DSN FAX 361-5848, voice -4677

Recreational Areas A and B Depiction**★Figure 7.5**

★Chapter 8

GILA BEND AIR FORCE AUXILIARY FIELD PROCEDURES

8.1. General Description: Gila Bend AFAF is located 4.7 NM southwest of the Gila Bend VORTAC. Non-emergency aircraft must obtain a "Prior Permission Required" (PPR) approval from 56 RMO/QAE (DSN 896-5261) 24 hours prior to intended landing unless landing in support of scheduled range missions. The layout of Gila Bend AFAF is depicted at Figure 8.1. Traffic inbound to Gila Bend AFAF will contact Gila Bend Tower on 324.1UHF/127.75 VHF as soon as possible for landing instructions. Upon initial contact Gila Bend tower will issue landing runway, altimeter setting, and status of Range 3 when required or requested. Remain clear of Range 3 and the East TAC range to the maximum extent possible. Flight leads are encouraged to utilize Gila Bend airfield for touch-and-go and Simulated Flame Out (SFO) training requirements. Only Regular Users, as defined in paragraph 1.3.1, are authorized touch-and-go landings and straight-in SFO approaches.

8.2. Arresting Equipment. The approach end E-5 is disconnected and removed from the underrun. Approach and departure end BAK-12s (modified with 8-point tiedown system) are connected approximately 1,200' from the threshold at each end.

8.3. Parachute Jumping Operations. When Gila Bend has parachute operations scheduled, the dates and times will be listed in the Airfield and/or Range NOTAMs. Jumps will be made within a 5 NM radius of the airfield from surface to 17,500' MSL. Avoid flight within this area during parachute operations unless an emergency situation exists. GBAFAF Tower and ROCC will issue advisories to all flights.

8.3.1. Primary Parachute Training Drop Zone (DZ). The primary DZ is located approximately 3.1 NM WSW of GBAFAF. The center-point lies at 12SUB33493797 or N32-52.04' W112-46.78', elevation 864' MSL.

8.3.2. Alternate Parachute Training DZ. This jump pit is located north of the western end of inactive runway 11 at N32-53.163 W112-43.340 on GBAFAF (Figure 8.1). Use of the alternate DZ is the exception rather than the rule and will require 56 RMO Director approval.

8.4. Traffic Pattern.

8.4.1. Except for emergency divert situations, the maximum number of aircraft operating in Gila Bend's airspace is four (4).

8.4.2. The VFR traffic pattern is 2,400' MSL and 300 knots with pitchouts to the west. (Normal initial is 3 NM).

8.4.3. Straight-in and pattern altitude for cargo aircraft is 1,900' MSL.

8.4.4. Closed altitude is 1,700' MSL.

8.4.5. Breakout altitude is 2,900' MSL.

8.4.6. No straight-in approaches will be flown to Runway 17 except for emergency aircraft.

8.5. Entry Procedures. From TANKS or AUX-1 contact Luke approach on 301.5 (CH 5) and follow routing and altitude restrictions depicted in Figure 8.2. Pilots should avoid the Arlin Intersection (LUF 215/24; GBN 344/22; BXK 131/12) and vicinity between 12,000' MSL and FL 180 enroute to Woolsey Peak (LUF 216/34; GBN 307/17; or BXK 176/17). Avoid overflight of the town of Gila Bend and the Gila Bend Municipal Airport.

8.5.1. Cooly (Black Gap) Entry. Comply with routing and altitude restrictions depicted in Figure 8.2..

8.5.2. Busco Entry. Depart Busco at 4,000' MSL direct to the field and contact tower for clearance to join the traffic pattern as depicted in Figure 8.2.

8.5.3. Reentry Procedures. Turn westerly climbing to 2,400' MSL and 300 knots to intercept normal flow of traffic and enter a 3-mile initial or request a straight-in (Runway 35) abeam Williams AUX-6.

8.6. SFO Procedures.

8.6.1. SFOs may be conducted in VMC conditions between sunrise and sunset when Gila Bend AFAF weather is at least 1,000' above high key altitude and five miles visibility.

8.6.2. High Key may be entered from any position with tower approval and flown to either runway. Climb out to the SFO pattern will be accomplished east of runway 17/35. Utilize 270-degree SFOs to the maximum extent possible. Maximum altitude is 10,000' MSL. Normal breakout is above 2,900' MSL or as directed. Remain south of Interstate 8.

8.6.3. Contact Gila Bend AFAF tower on 324.1 with the SFO request when below FL180 and able to maintain VMC.

8.6.4. Use extreme caution to remain clear of Range 3 inbound to the SFO pattern.

8.6.5. Straight-In SFOs. Straight-in SFOs will be flown to runway 35 only. Upon initial contact with the control tower the pilot will report his position and altitude and request the straight-in SFO. If Range 3 is hot, the straight-in SFO will be denied. If Range 3 is cold, the pilot will be instructed to report 10NM and 5NM. The cutoff point for Range 3 traffic is 10NM from the landing threshold. When aircraft check-in with Range Operations for Range 3, any SFO traffic greater than 10NM on final will be directed to breakout. Breakout is a climb to 10,000' MSL direct to GBAFAF. The cutoff point for other pattern traffic is 5 NM. Report 5 NM with the gear. Aircraft at high key will be instructed to hold. Aircraft on initial will be directed to go straight through. Break/pitch-out will be extended for sequencing behind the aircraft executing the straight-in SFO.

8.6.6. Random Entry SFOs. Follow straight-in SFO procedures (para. 8.6.5.) to either runway.

8.6.7. Gila Bend Departures. All departures from Gila Bend will be VFR.

8.6.7.1. Returning to Luke AFB. If returning to Luke AFB, execute a turn to the east. Climb to a VFR hemispheric altitude above 4,000' MSL to avoid GBN Municipal, above 5,000' MSL for radio reception with Luke arrival. Use caution for VALLY recovery traffic. Maintain VFR and proceed direct to GBN TACAN. Contact Luke arrival, squawk 0200, and request a VALLY recovery.

8.6.7.2. Other Departures. Other departures will maintain VFR and contact Albuquerque Center (288.3) for an IFR pick-up, or BMGR Range Operations (272.1) for range entry.

8.7. Gila Bend NORDO/Emergency Procedures.

8.7.1. Initial notification of an airborne emergency recovering to Gila Bend should be on SOF frequency, time permitting, and then UHF guard with the ETA to Gila Bend. If possible, switch to GBN tower prior to landing. When an emergency aircraft calls Gila Bend tower, other aircraft will depart the pattern. Chase aircraft will normally fly on the east side to avoid overflight of base facilities.

8.7.2. Gila Bend can transmit and receive on SOF frequency 369.1.

8.7.3. Pilots of NORDO aircraft recovering single ship to Gila Bend AFAF should attempt to determine the active runway by observing traffic in the pattern and proceed according to DOD Flight Information Handbook.

8.8. Control Tower Hours of Operation. Gila Bend tower will provide air traffic control services as required, during scheduled Goldwater Range and SELLS MOA periods, excluding holidays. opening/closing times will be as follows:

- Tower will open 30 minutes prior to the scheduled range time of the first range mission, or 15 minutes prior to the first scheduled takeoff at Luke AFB, whichever comes first.
- Gila Bend tower will remain open until all Luke AFB local flying in the southern ranges is complete or, 15 minutes after range departure of aircraft originating from another base, whichever is later.
- Prior to closing the tower, at the end of the scheduled flying day, the controller on duty will coordinate with range control to confirm that all scheduled flights have cleared off the range, and no flights have been added.
- Requests for services outside these times, to include weekends, will be pre-coordinated through the 56 RMO/AROS at x7650.

8.9. Runway Utilization. Runway 35 is designated as the preferred runway and will be used when the tailwind component is 10 knots or less.

8.10. Gila Bend Class “D” Airspace Procedures. Gila Bend Tower is the controlling agency for all takeoffs, landings, and simulated laser target/pave penny approaches at Gila Bend AFAF. All approaches will be accomplished on Gila Bend frequency 324.1 (CH 8), 369.1 (Luke IFEs), or 127.75. The following aircraft priorities are established for Gila Bend Class “D” Airspace:

1. Emergencies
2. Air evacuation aircraft
3. Checkrides
4. Syllabus Transition Training
5. Straight-in SFOs
6. Overhead SFOs
7. Pave penny operations
8. Routine traffic

8.11. Gila Bend AFAF Departures. On a flight initiated from GBAFAF, pilots desiring IFR clearance from Gila Bend AFAF should either file a flight plan with Albuquerque Center prior to arrival at Gila Bend, or with Luke base operations at least 30 minutes prior to departure. Departure will be VFR. Pilots must request IFR clearance from Albuquerque Center after becoming airborne.

8.11.1. Runway 17 and 35 departures are to cross the departure end of runway at or below 1,900’ MSL.

8.11.2. Intersection departures are not authorized for attack or fighter aircraft.

8.11.3. Helicopters entering the rectangular traffic pattern will be handled in the same manner as the conventional traffic, except that pattern altitude will be 1,400’ MSL and either east or west pattern may be used.

8.12. Straight-in/Random SFO Controller Checkout.

8.12.1. Initial controller checkout/training will be accomplished in the following manner:

- Academics (taught by chief tower controller and OG designated IP.)
- DASH 1 SFO pattern procedures, potential traffic conflicts, breakout procedures, cut off points, and hand-off procedures.
- Flight Certification.
- A highly experienced IP/FCP pilot will fly patterns for controller certification.
- Traffic pattern will be sanitized to minimize conflicts during certifications.
- Chief tower controller at GBAF will checkout controllers using “watch one, control one.”
- Certification will be documented in applicable training records.

8.12.2. SFO/Range 3 traffic deconfliction. After initial contact from an aircraft requesting a straight in-SFO, Tower will obtain Range 3 status from Range Operations. Range Operations will monitor status of straight-in SFO and report any inbound Range 3 traffic to Tower. With

inbound Range 3 traffic, Tower will direct any straight-in SFO greater than 10NM on final to break out.

8.13. Aircraft Procedures. Aircraft may utilize Gila Bend AFAF for low approaches and touch-and-go when approved by the tower. Other than emergencies and divers, full stop landings require prior permission from the 56 RMO/Director or his designated representative. Contact 56 RMO/QAE at DSN 896-5261 for PPR approval.

8.14. Hung or Unexpended Ordnance. When notified of an inbound aircraft with hung ordnance, the following procedures apply:

- The tower will notify the fire department and Range Operations/Transient Alert for dearming.
- Ground personnel will park any live ordnance aircraft, or aircraft with unsafe gun in the north turnaround area on a magnetic heading of 030° or in the south turn-around area on a magnetic heading of 130° to avoid populated areas. Aircraft will remain parked in the turn-around areas until safed or dearmed.

8.15. Control of Ground Traffic and Vehicle Operations on the Aerodrome.

8.15.1. All non-emergency aircraft landing or departing Gila Bend AFAF will be given control instructions on 324.1 MHz (CH 8) or 127.75 MHz. Taxi information and preventive control will be provided, as required or requested.

8.15.2. Tower responsibility for control of vehicular traffic on the aerodrome will be limited to those operating on or crossing the runway or taxiway.

8.15.3. All vehicles having access to the airport movement area will have two-way radio communications with the tower, and the radio will be monitored at all times.

8.15.4. Radio approval from the tower is required before vehicles proceed closer than 250' from the runway.

8.15.5. In the event two-way radio contact is lost between the tower and vehicles on, or near the runway, the control tower will turn the runway and taxiway lights on and off rapidly for a period of not less than 30 seconds. This is a signal for all vehicles who are on, or near the runway, to depart or immediately withdraw to a point at least 150' from the runway. The tower controller will also, time permitting, transmit a flashing red light gun signal to the vehicles on the runway. Any time vehicle operators experience actual, or suspected, loss of two-way radio contact with the tower they will exit the runway or taxiway immediately.

8.15.6. Vehicles will yield to all taxiing aircraft and remain clear.

8.15.7. All TDY personnel requesting access to the flight line must receive a briefing from Gila Bend AFAF Range Operations.

8.15.8. When necessary, the tower will suspend runway operations temporarily to allow airfield operations, fire department personnel, or civil engineers to inspect the arresting barriers or perform maintenance.

8.15.9. A designated representative will inspect the runway after an emergency.

8.15.10. According to stop alert procedures, and so as not to interfere with tower communications:

- Crew chiefs will inform range operations of any impending engine runup.
- Range operations will notify the tower, transient alert, and the fire department.
- Personnel performing engine runups will make radio contact with the tower, before the runup begins, and will continue to monitor frequency 324.1 or 127.75 throughout the runup. The runup will be terminated if tower personnel so direct.

8.16. Runway Change Procedures. Tower is responsible for determining the active runway predicated upon existing and forecast wind conditions. When a change of runway is deemed necessary tower will:

- Notify the range operations of the runway change and request a barrier change.
- Notify the Luke SOF and Gila Bend weather observer when the runway change is completed.

8.17. Barrier Positions. Range operations will ensure procedures are established for the proper maintenance and operation of the arresting systems and that daily checks are made.

- Barrier maintenance will inspect all arresting systems prior to airfield opening and report status to Range Operations.
- Recycling time for the E-5 arresting system is normally several hours. Most of the arresting gear must be replaced and heavy equipment is needed to return the chains to their normal position.
- After release of an aircraft from the cable, the minimum rewind time for the BAK-12 is 3-1/2 minutes. A minimum of an additional 2-1/2 minutes is required to position the cable supports. A 20 minute period is required for atmospheric cooling of braking gear. Each BAK-12 at Gila Bend AFAF can accommodate three aircraft per hour.

8.18. Airfield Lighting.

8.18.1. The control tower has control of all airfield lighting with the exception of obstruction lights, which are activated by photocell.

8.18.2. The runway and taxiway lights will be operated at the intensity specified in applicable directives and will be operated continuously from sunset to sunrise whenever the tower is open.

8.18.3. The precision approach path indicators (PAPIs) will be operated on step 2 from sunrise to sunset and on step 1 at night.

8.18.4. The rotating beacon will be operated according to applicable directives.

8.18.5. Gila Bend AFAF is a VFR only facility. Operation of airfield lighting during periods of reduced visibility will be at pilot's request.

8.19. Tower Evacuation Procedures.

8.19.1. When high winds occur, or are forecast, tower personnel will remove all loose items from the catwalk and place them in the tower cab.

8.19.2. The Tower will be evacuated for: wind velocity reaches 42 knots; bomb threat; fire; power failure; etc.

8.19.3. Broadcast, on all available frequencies, "ATTENTION ALL AIRCRAFT IN THE GILA BEND AREA, GILA BEND TOWER IS BEING EVACUATED DUE TO (Reason). CONTACT GILA BEND RANGE OPERATIONS ON 272.1 OR 120.55 FOR GILA BEND AIRFIELD ADVISORIES."

8.19.4. When the Gila Bend weather observer estimates that the wind velocity has subsided to less than 42 knots, the observer will notify the tower controllers. After returning to the tower, controllers will broadcast, on all available frequencies, "ATTENTION ALL AIRCRAFT IN THE GILA BEND AREA, GILA BEND TOWER BACK IN SERVICE."

8.20. Range Operations. Range Operations provides advisories and flight following to all aircraft operating within the Goldwater Range Complex.

8.20.1. If it becomes necessary to divert aircraft from one range to another, Luke Range Scheduling will be the final approval authority. The Range Operations will forward only information received from Luke command post.

8.20.2. Range Operations will advise aircraft to contact Gila Bend tower on frequency 324.1 (CH 8) when the flight wishes to perform an airfield orientation, practice approach, or when one of the aircraft in the flight needs to make an emergency landing. Emergency Luke aircraft will use Luke SOF frequency (369.1) as needed. Range operations will advise the aircraft of the status of Range 3 (hot or cold).

8.21. Tower and Range Operations Coordination.

8.21.1. Gila Bend Range Operations will:

- Advise the tower of all known construction or obstructions and pending unusual activity on the airport movement area.
- Coordinate with the tower all known requests for known crop dusting operations, within five statute miles of Gila Bend AFAF.
- Advise tower of all VFR inbound and outbound proposals.

- Advise tower and security of unusual persons, or agencies, approved by range operations to operate within the movement area. Range operations will monitor all personnel who will be near, or on, an active runway or taxiway.
- Make available to the tower a copy of the daily range operations schedule at least the day prior to the scheduled events.
- Ensure that all aircraft maintenance crews contact tower, to request permission onto the movement area, for last chance maintenance inspections on departing aircraft.
- Relay to Luke base operations all aircraft arrival and departure times as received from the tower.

8.21.2. Tower will:

- Issue bird hazard warnings and coordinate IAW paragraph 2.11.
- Relay aircraft arrival and departure times to range operations.
- Report to range operations all observed previously unreported, construction or unusual activity on the movement area.
- Relay to range operations all reports of FOD.

8.22. Civil Aircraft Use of Gila Bend AFAF Facilities. Civil aircraft are not authorized to use Gila Bend AFAF for VFR pattern work.

8.23. Emergency Locator Transmitter Procedures. When an emergency locator lasts longer than three audio sweeps, tower personnel will notify the Luke Command Post, the Luke SOF and range operations. The crash phone will not be activated.

8.24. Weather Balloons. The weather observer will advise the tower controller, prior to the release of weather balloons.

8.25. Backup Power. The control tower will be placed on generator power any time thunderstorms are reported, within five miles of Gila Bend.

8.26. Air Evacuation Aircraft Procedures. Range operations will serve as a single point of contact for air evacuation aircraft. On unscheduled arrivals, Gila Bend tower will notify range operations, when they receive notice of an air evacuation aircraft diverting to Gila Bend. As a minimum, tower will obtain the following information for relay to range operations:

- ETA
- Load message
- Fuel on board

8.27. Helicopter Operations.

8.27.1. Skid type helicopters are authorized direct access to the ramp for landing and takeoff. Landing gear equipped helicopters will use the main runway, or helicopter pads, for landing and takeoff.

8.27.2. All skid type helicopters may be restricted to using the concrete apron when the daily average temperature exceeds 85°, and refueling is required.

8.27.3. The helicopter pad located west of the hangar is obscured from full view of tower personnel. Helicopters should visually clear the area, and land at their own risk.

8.27.4. Western Army Aviation Training Site (WAATS) Procedures: WAATS helicopters are authorized to conduct operations directly to and from the east ramp, and the helicopter pads north of the hangar. Arrival and departure routes will be flown so as to avoid pointing the aircraft towards the base or any other populated area (see Figure 8.1). Armed helicopters will use the helicopter pads north of the hangar.

Gila Bend Air Force Auxiliary Field (GBAFAF) Layout

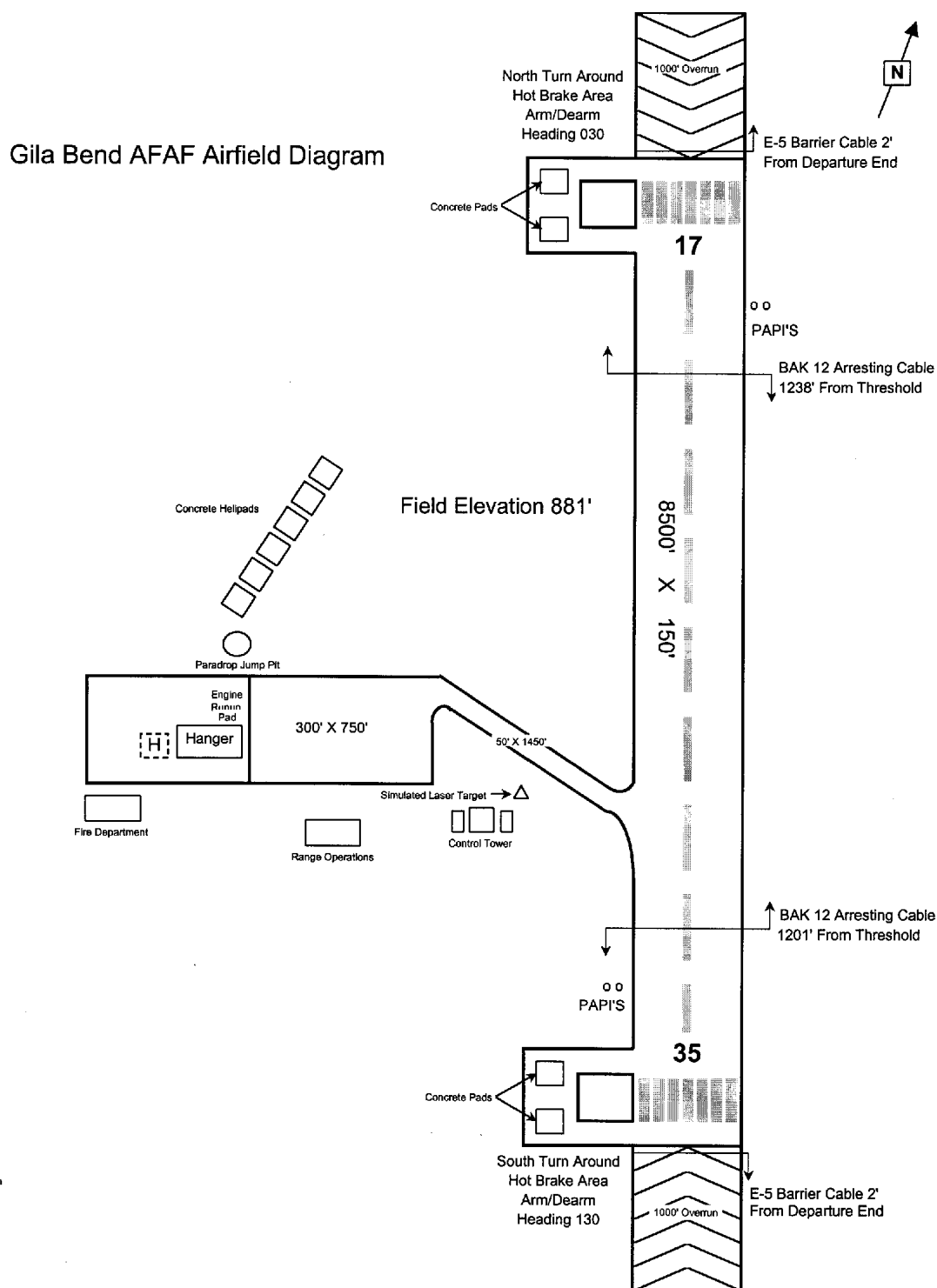


Figure 8.1

GBAFAF Traffic Patterns

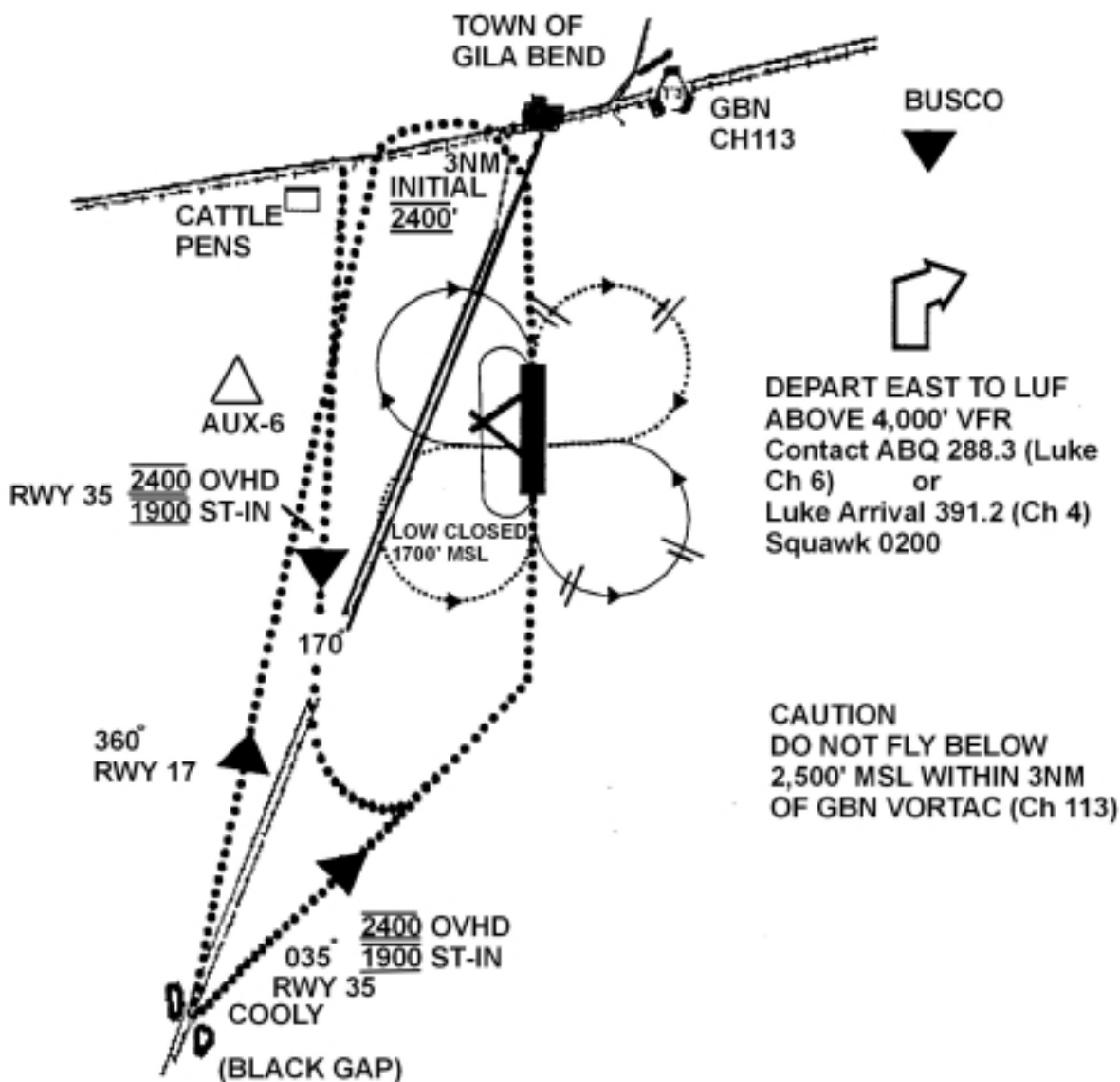
GILA BEND TRAFFIC PATTERN**GBN TOWER: 324.1 (LUKE CH8)**

Figure 8.2

Glossary of Terms and Abbreviations

AALOW	Air-to-Air Low
AAHI	Air-to-Air High
A/A RCO	Air-to-Air Range Control Officer.
ABCCC	Airborne Command and Control Center.
ABQ	Albuquerque Center.
ACC	Air Combat Command.
ACM	Air Combat Maneuvering.
ACMI	Air Combat Maneuvering Instrumentation.
ACT	Air Combat Tactics.
Add-On	Range requests made after 1600 of the day prior
AETC	Air Education and Training Command.
AFAC	Airborne FAC.
AFAF	Air Force Auxiliary Field.
AFR	Alternate Firing Range
AGL	Above Ground Level.
AGM	Air to Ground Missile
AGTS	Aerial Gunnery Target System.
API	Armor Piercing Incendiary.
AR	Air Refueling. (Same as AAR: Air-to-Air Refueling)
ATOT	Applied Tactics Orientation Target.
ATC	Air Traffic Control.
ATCAA	Air Traffic Control Assigned Airspace.
AUX	Auxiliary.
AWACS	Airborne Warning and Control System (E-3 Aircraft).
BFM	Basic Fighter Maneuvers.
BMGR	Barry M. Goldwater Range.
BVR	Beyond Visual Range.
Call-outs	Purchase of range time outside normal duty periods
CFT	Combined Force Training.
COMM	Commercial Phone.
Conv	Conventional.
C/S	Call Sign.
CP	Command Post/ Contact Point.
DACM	Dissimilar ACM.
DACT	Dissimilar ACT.
DART	Deployable Aerial Rigged Target.
EC	Electronic Combat.
ETAC	East Tactical Range.
EOD	Explosives Ordnance Disposal.
EW	Electronic Warfare.
FAA	Federal Aviation Administration.
FAC	Forward Air Controller.
FL	Flight Level.
FLIP	Flight Information Publication.
FRA	First Run Attack.
GBAFAP	Gila Bend Air Force Auxiliary Field
GBN	Gila Bend TACAN.
GFAC	Ground FAC.
GLLD	Handheld LASER.
GMT	Greenwich Mean Time (ZULU Time).
GP	General Purpose.
GPS	Global Positioning System
HAS	High Angle Strafe (above 20 degrees of dive).
HARB	High Altitude Release Bomb.
HE	High Explosive.
HEI	High Explosive Incendiary.
IAW	In Accordance With
ID	Identify
IFR	Instrument Flight Rules
IMC	Instrument Meteorological Conditions
INS	Inertial Navigation System

Glossary of Terms and Abbreviations, con't

IP	Initial Point or Instructor Pilot
IR	Infra-Red
KM	Kilometer
KTS	Knots
LAFB	Luke Air Force Base
LAS	Low Angle Strafe (less than 20 degrees of dive)
LASDT	Low Altitude Step-Down Training
LATN	Low Altitude Tactical Navigation
LFE	Large Force Exercise/Employment
LGB	Laser Guided Bomb
LRS	Long Range Strafe
Luke Almanac	56FWFW OPOD 56-97
LUF	LAFB TACAN
m	meter
MCAS	Marine Corp Air Station
mm	millimeter
MOA	Military Operating Area
MSA	Munitions Storage Area
MSL	Mean Sea Level
MST	Mountain Standard Time (ZULU - 7)
MTR/ VR	Military Training Routes/VFR Routes
NAD	North American Datum
NET	Not Earlier Than
NLT	Not Later Than
NM	Nautical Miles
NOHD	Nominal Ocular Hazard Distance
NORDO	NO RaDiO
NTAC	North Tactical Range
NUC	Nuclear
NVG	Night Vision Goggle
NWD	Nuclear Weapons Delivery
OCR	Office of Coordinating Responsibility
OP	Observation Point
OPR	Office of Primary Responsibility
PIBAL	Pilot Balloon
POC	Point Of Contact
PPR	Prior Permission Required
RAYMOND	Command Post Call Sign
RCO	Range Control Officer
RMCP	Range Munitions Consolidation Point
RTB	Return to Base
RX	Rocket
SAM	Surface-to-Air Missile
SEED	Safe Eye Exposure Distance
SLT	Simulated Laser Target
SRP	Salt River Project TACAN
SSS	Smokey SAM Simulators
STAC	South Tactical Range
SUA	Special Use Airspace
TACAN	Tactical Air Navigation
TER	Triple Ejector Rack
TFD	Stanfield TACAN
TMLT	Turning Maneuver Level Turn
TOSS	Television Ordnance Scoring System
TOT	Time on Target
TP	Target Practice
TTS	Two Target Strafe
UHF	Ultra High Frequency

Glossary of Terms and Abbreviations, con't

UTM	Universal Transverse Mercator Coordinates
UXO	Unexploded Ordnance
VHF	Very High Frequency
VMC	Visual Meteorological Conditions
WAATS	Western Army National Guard Aviation Training Site
WGS	World Geodetic System
WIC	Weapons Instructor Course
WP	White Phosphorus "Willie Pete"
WX	Weather

Local Reference Points and Coordinates

Name	ID	Chan	Coordinates	Elev	Variation
Buckeye	BXK	43	N3327.208 W11249.476	1060	E14
Davis-Monthan	DMA	123	N3209.606 W11052.857	2660	E13
Gila Bend	GBN	113	N3257.378 W11240.457	790	E14
Luke	LUF	77	N3332.260 W11222.812	1090	E13
Tucson	TUS	107	N3205.713 W11054.894	2670	E12
Yuma	NYL	84	N3238.809 W11436.806	193	E14

IFR Reference Points	TACAN Cut	Latitude	Longitude	Elev
ARSON	205/52/ch43	N3246.000	W11328.300	800
BUGGS	164/55/ch77	N3237.335	W11219.394	2400
COOLY	200/10/ch113	N3249.084	W11247.111	900
EMBAR	187/20/ch113	N3238.701	W11248.969	1100
NOLLS	175/39/ch43	N3248.685	W11256.735	800
STOVL	243/45/ch113	N3247.082	W11332.605	650
GUNST	165/46/ch113	N3212.283	W11238.367	1950
DELLY	124/48/ch113	N3221.611	W11202.435	1900

Ground Reference Pts	TACAN Cut	Latitude	Longitude	Elev
AJO Airport	184/32/ch113	N3227	W11252	1432'
BLACK GAP	198/14/ch113	N3245	W11249	1022'
CIMARRON PK	142/34/ch113	N3227	W11224	4124'
COFFEEPOT MTN	156/31/ch113	N3229	W11237	3466'
EOD Range	205/16/ch113	N3245.311	W11252.081	950'
GBAFAF Rwy 35 (Aph End)	190/05/ch113	N3252.584	W11243.184	871'
HAT MTN	180/20/ch113	N3238	W11245	2840'
RMCP, Range 1/NTAC/STAC		N3232.170	W11305.030	1000'
RMCP, Range 2		N3239.490	W11252.270	1000'
RMCP, Range 3/ETAC		N3242.420	W11240.120	1400'
RMCP, Range 4		N3248.480	W11254.510	800'

Range Centerpoints	TACAN Cut	Latitude	Longitude	Elev Ranges
Air-to-Air	210/52/ch113	N3228.000	W11322.000	300'-3000'
ETAC Main Afld Ctr		N3240.142	W11237.044	1300'-3,000'
NTAC Main Afld Ctr		N3238.171	W11312.819	700'-1800'
STAC Main Afld Ctr		N3233.609	W11314.591	700'-2,000'
RANGE 1 NUC Target	197/29/ch113	N3230.701	W11257.652	1193'
RANGE 2 NUC Target	200/20/ch113	N3239.456	W11254.019	1032'
RANGE 3 Left Conven	175/13/ch113	N3244.286	W11242.922	1229'
RANGE 4 NUC Target	231/24/ch113	N3245.959	W11305.416	723'